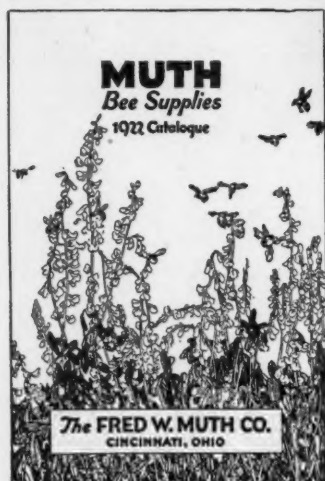


AMERICAN BEE JOURNAL

DECEMBER 1922



SAN DIEGO COUNTY, CALIFORNIA BEEKEEPERS' EXHIBIT



You need our 1922 bee supply catalog more than ever before. Have you received one? Many new articles are listed for the saving of labor and greater honey production. Our attractive prices, superior quality and prompt service will always be appreciated by beekeepers.

Send a list of your requirements
to us

THE FRED W. MUTH COMPANY
Pearl and Walnut Sts., Cincinnati, Ohio

THE DIAMOND MATCH CO.

(APIARY DEPT.)

**MANUFACTURERS OF
Beekeepers' Supplies
CHICO, CAL., U. S. A.**

Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.

EASTERN DISTRIBUTORS

**HOFFMAN & HAUCK, 1331 Ocean Ave.
WOODHAVEN, N. Y.**

The Diamond Match Company requires responsible agents in the Central States who are in a position to handle car load lots.

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to the Diamond Match Co. for prices and for their Beekeepers' Supply Catalog.

This Company operates at Chico, California, the largest beehive factory in the world.

They own their own timberlands and sawmills, from the tree to the finished product; no middleman takes out a profit.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

ALUMINUM HONEYCOMBS

The Diamond Match Co. and their agents are the sole distributors in the United States of the Aluminum Honeycombs, manufactured by the Duffy-Diehl Co., Inc., of Pasadena, Calif. Write for descriptive pamphlets. Eastern beekeepers should send their orders for the Diamond Match Co.'s supplies to Hoffman & Hauck, 1331 Ocean Avenue, Woodhaven, N. Y.

**DIAMOND MATCH CO., Apiary Department
CHICO, CALIFORNIA**

FOR REAL SUCCESS YOU SHOULD BUY

WOODMAN INNER OVERCOAT HIVES

Protected Bees Work Day and Night. It has been shown by careful observation that maintaining a temperature of 98 degrees permits comb building to go on both day and night. The bees will thus devote more daylight time to gathering honey.

Larger Honey Crops Are Assured. The bees are enabled to rear brood earlier in the spring, with no danger of chilled brood on account of cold snaps. One bee in March is worth one hundred in July. The early bees produce the early swarms, that get the large honey crops. Therein lies success or failure.

You will Practically Eliminate Winter Losses. With your colonies in normal condition (that is, with plenty of good stores, a young queen and young bees), you will be able to winter practically 100%.

The Inner Overcoat Hive will Last a Lifetime, as the outer hive walls are the same thickness as in the single-wall hive. In other words, Woodman Inner Overcoat Hives are a lifetime investment—not an expense.

Out-of-Door Wintered Bees Have Many Advantages over cellar-wintered bees. They do not spring-dwindle, and are stronger at the opening of honey flow.

Insures Close-up Protection. A person may have any amount of blankets fastened up to the wall of his room and still freeze to death if left in the center of the room without close-up protection or insulation. The close-up protection in the Inner Overcoat Hive is what does the trick.

Five one-story regular depth hives, \$25; Jumbo depth, \$27.50.

SPECIAL circular on Woodman's Protection Inner Overcoat, showing ten large illustrations, sent on request.

**A. G.
WOODMAN
COMPANY**

240 Scribner Ave. N. W.

SOLE MAKERS

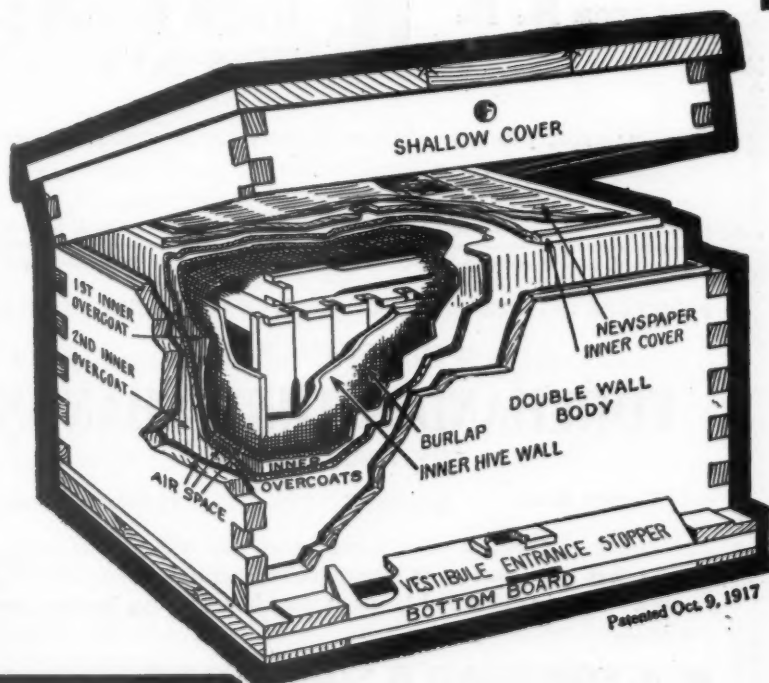
GRAND RAPIDS, MICH.

U. S. A.

HOW TO USE

PROTECTION HIVES

When the bees are to be prepared for winter, remove the cleats which close up the insulating space. Then telescope one or more bottomless corrugated paper box insulators between inner and outer hive walls. Spread a piece of burlap or sacking material over the hive so that it will be carried down with the Inner Overcoats in telescoping them over the inner hive wall, having the effect of wrapping the brood nest in a blanket. These Inner Overcoats, with their air spaces, afford more protection than several inches of ordinary packing materials, and this is all secured in an insulating space of about one inch.



Big Reductions on Bee Supplies

Shipping cases, \$30 per 100.
 Slotted section holders, \$3 per 100.
 Sections, 1 $\frac{1}{2}$, No. 1, \$10 per 1,000.
 Job lots of frames, regular size, \$3 per 100.
 Standard Hoffman frames, 9 $\frac{1}{4}$ in. deep, \$4.50 per 100.
 Unspaced wedged top-bar frames, 9 $\frac{1}{4}$ in. deep, \$2.75 per 100.

SEND FOR CATALOG AND PRICE LIST

CHARLES MONDENG

146 Newton Ave. N. and 159 Cedar Lake Road
 MINNEAPOLIS, MINN.

WE'LL SUPPLY YOU

BEE SUPPLIES

THAT ARE
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REAL GOODS
 RIGHT PRICES
 CASH ORDERS
RUSCH & SON CO.
 REEDSVILLE, WIS.

Let us quote you prices before you place your order. Illustrated
 Catalog sent on request.

PIONEERS OF 1892.

PROGRESSIVE BEEKEEPERS OF 1922.

30 SUCCESSFUL YEARS

FOREHAND'S THREE BANDS

THE THRIFTY KIND

Thrifty Bees.

Thrifty Queens.

A discount, a special offer, a guarantee that will protect; bees and queens that will make your investment a profitable one; service that pleases. Write us now and let us explain how you can increase profits for 1923.

W. J. FOREHAND & SONS, Fort Deposit, Ala.

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SANCO QUALITY BEEKEEPERS' SUPPLIES

at wholesale prices.
 Order now and save money. Prices will be higher next year.
 Why not be one of our money-making dealers?

SANCO BEE COMPANY,
 East Main St., Fredericksburg, Ohio.

MONEY AND SATISFACTION FOR YOU

Save one profit by buying direct from factory. Standard, Jumbo and Modified Dadant Hives; cedar or pine. Write for catalog.

A. E. Burdick Co., Sunnyside, Wash.

AMERICAN HONEY PRODUCERS' LEAGUE NOTES

The officers of the League are planning to cater to those who are anxious for a "regular old-fashioned beekeepers' talk-fest and good time," as well as the business men who make up the principal membership, at the St. Louis meeting on February 6, 7 and 8. The Hotel Statler has been designated as headquarters, and all meetings, including the annual banquet, will be held there. Those who wish to take rooms in the same hotel are requested to make reservations at as early a date as possible, as St. Louis is filled with guests during February. Numerous hotels and boarding houses at moderate rates are also available in the general vicinity.

Honey Recipe Booklets

Honey sales may be stimulated by offering a recipe book as a premium to each purchaser. The best thing of this kind ever issued is the one recently published by the American Honey Producers' League—21 pages on the keeping of honey, and its use in bread, cakes, and candy making. Honey producers should put this into the hands of every purchaser.

Order from S. B. Fracker, Secretary of the American Honey Producers' League, Capitol Annex, Madison, Wis. The booklet can be secured at the following rates, postage extra; shipping weight about 6 pounds for each 100 copies:

20 copies	-----	\$1.25
100 copies	-----	4.50
1000 copies	-----	33.00

Ten per cent discount to affiliated members of the League. The name and address of the purchaser will be printed on the booklet without additional charge in the case of orders of 200 or more copies.

The League Bulletin, official publication of the American Honey Producers' League, is now being mailed each month to the affiliated members of that organization. It is sent out from the Secretary's office, American Honey Producers' League, Capitol Annex, Madison, Wis.

According to the November number, affiliation with the League carries with it the following privileges:

1. Free subscription to the League Bulletin, which may be expected monthly from now on. Marketing reports are to be included in all issues after this one.
2. Ten per cent discount on copies of "Honey, How and When to Use It," a recipe booklet for distribution to customers. A single order for two hundred of these booklets will save enough to pay the affiliation fee.
3. The right to use warning posters offering a reward for the arrest and conviction of thieves and marauders in apiaries of members.
4. Assistance in the adjustment of claims arising from suspected fraud and misrepresentation.
5. Legal aid in opposing the enactment of state laws and city ordinances injuring beekeeping.
6. Share in an organization which has advertised honey nationally, has distributed 18,000 honey recipe booklets to all parts of the United States,

has supported the recent advance in the tariff on honey, reducing competition from cheap foreign honey and has upheld beekeeping interest in city councils, state legislatures and the United States Congress.

Individual membership at the dollar rate is open only to members of affiliated organizations. If you are interested, write the secretary of your state organization. The League will send you his name on request.

When you sell a big order of honey to the grocer, give him a few copies of "Honey, How and When to Use It." Get your supply today from the American Honey Producers' League, Secretary's Office, Capitol Annex, Madison, Wis. The price is \$4.50 per 100, or, if you cannot use that many, 20 copies for \$1.25.

Ten per cent discount to affiliated members of the League.

Iowa Association Meeting

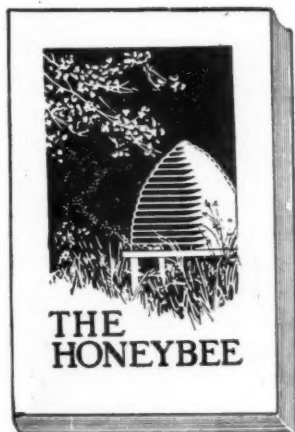
The annual meeting of the Iowa Beekeepers' Association will be held in Des Moines on December 8 and 9. They expect to have Mr. Allen Latham, of Norwichtown, Conn.; Mr. E. R. Root, of Medina, Ohio, and Mr. Frank C. Pellett, all of whom will deliver addresses.

Mr. E. W. Atkins will also deliver an address on the "Past, Present and Future of Beekeeping."

The Association has accomplished a number of important things during the past year and it is hoped that there will be a large attendance at the meeting for the discussion of or further activities.

A NEW EDITION

THE HONEY BEE



¶ This book regarded by many as the most important contribution to the literature of beekeeping has again been revised and brought up-to-date by C. P. Dadant.

¶ The style of the book has been entirely changed. The page is larger, a frontispiece in color is included and many new illustrations have been added.

¶ This book containing the best from the lifework of three widely known apiarists—Langstroth, Chas. Dadant and C. P. Dadant should be in the library of every up-to-date beekeeper.

¶ 448 large pages, durable cloth binding.

Postpaid \$2.50.

AMERICAN BEE JOURNAL, Hamilton, Illinois

American Sugar Refining Co.

The 1921 annual report of the American Sugar Refining Company is at hand. The outstanding feature of the report is the scheduling of an operating loss of over five million dollars for the company in 1921, as against nearly ten millions in 1920.

The report lays the stringent condition of the world's sugar markets largely to the policy of control of sugar by the Government during the war and its decontrol afterwards.

Hundreds of millions were invested in sugar plantations and sugar machinery during the war period, with the result that production climbed steadily even after the war was over. The company claims that there will need to be an export of one million tons of sugar annually to relieve the situation, and that it is yet a question whether the United States or foreign countries will get this trade.

The report comprises 50 pages and contains, besides the annual report, recommendations, etc., figures on production, laws and tariffs affecting sugar, etc. It is very interesting.

Work Progressing in Missouri

The Extension Department of the University of Missouri, with Mr. A. C. Burrill in direct charge, is doing much for the beekeepers there. Many county associations have been formed, questionnaires have been sent out and much interest displayed on the part of the beekeepers themselves.

With a good crop the past season and good prospects for clover in 1923, Missouri Beekeepers feel encouraged.

Generation of Heat by Bees

If twenty or more colonies of bees are kept in a hothouse the heat they generate will keep up the temperature of that building in cold weather.—From "Apiculteur," Dec., 1856.

Sweet Clover in Iowa

The largest yield per colony in any of our demonstration apiaries is in the apiary of Mr. Sam Barber, Kana-wa, Iowa. Mr. Barber had one colony that yielded 256 pounds of section honey. This was good, as the year was quite dry in this part of the state, but he attributes his large yield to the sweet clover on his farm. Aside from getting a good crop of honey he secured 70 bushels of oats per acre, which outdid any one in that section, and was also due to having seeded his land down to sweet clover. Mr. Barber attributes part of his success to assistance received from the Iowa State College at Ames.

W. E. Dittmer.

Iowa.

Honey in Automobile Radiators

Dr. R. B. Willson writes us from Ithaca, N. Y., the following letter:

"Can you tell me the correct proportion of honey and water to be used in automobile radiators during

the winter? I am going to send an article to every automobile publication in the country early next month telling about the wonderful ability of honey to prevent freezing. If every automobile owner in this country should use a gallon of honey in his radiator, our present production would fall far short of the demand. I would appreciate from you anything that you might know about this matter, and I will be glad to have you tell me of any results that you, or any of your friends, may have had in its use."

Answer.—We have nothing very definite as to the proportion of honey needed to keep the water from freezing. Glycerine is used, but glycerine is very expensive. We have used honey, but have never kept note of the proportion. Probably one-third honey and two-thirds water, well mixed, would be sufficient for any temperature, for the reason that such a mixture, when it freezes, merely thickens but does not freeze

solid and will run but little risk of expanding enough to crack the radiator. Honey, like glycerine, has the advantage that it does not evaporate, as does alcohol, and therefore does not need to be replaced. The important point is to have it so thoroughly mixed that it will not settle away from the water.

We call for tests from our subscribers and their experiences, which will be duly reported in our columns. If half of the automobiles in the northern states used honey as an anti-freezing mixture, all the low grades of honey would be consumed in this.

Change of Date of Meeting

On account of conflicting dates with those of other associations, the Empire State Federation of Beekeepers' Co-operative Associations, as changed the date of its meeting to Tuesday-Thursday, December 12-14. For information, write O. E. Bedell, Earlville, N. Y.



Can You Refuse?

EVERYWHERE you see the ravages of Consumption. There were 1,000,000 cases and 100,000 deaths from this scourge last year. But if all that see these words will help,

It can be stamped out

Buy the Tuberculosis Christmas Seals where you see them sold. (A picture of one is below.) The revenue from these sales is devoted to a great organized campaign against Tuberculosis. This campaign gives the service of doctors and nurses to millions of the stricken. It organizes local associations. It carries on educational work in schools and offices and factories. You cannot help in a nobler work. Join it. Buy the seals.



Stamp Out Tuberculosis
with Christmas Seals

THE NATIONAL, STATE, AND LOCAL TUBERCULOSIS
ASSOCIATIONS OF THE UNITED STATES



No. CCB61
Chaffee's Honey Girl
Mrs. H. F. Chaffee.

ANNOUNCEMENT ITALIAN BREEDING QUEENS

ACHIEVEMENT GIRL NO. C5

Placed with a three-pound two-frame nucleus June 5, Achievement Girl No. C5 built a strong colony which produced 455 pounds comb honey in remainder of season.

CHAFFEE'S HONEY GIRL NO. CCB61

Placed with a four-pound two-frame nucleus June 15, Chaffee's Honey Girl No. CCB61 built a strong colony which produced 412 pounds comb honey in remainder of season.

PRAIRIE QUEEN NO. CCB275

Placed with a two-pound nucleus May 26, Prairie Queen No. CCB275 built a strong colony which produced 405 pounds comb honey in remainder of season.

One-half interest in Prairie Queen No. CCB275 has been sold to J. M. Cutts & Son, Montgomery, Ala., for \$125.00.

AVERAGE APIARY PRODUCTION

305 nuclei established average date of June 14, headed by above queens and their sisters produced a total, including that in the brood chambers, of 52,540 pounds comb honey, an average of 172 pounds per nuclei. Has this record ever before been equaled?

BREEDING QUEEN YARDS

We are responding to a demand for queens of this blood. In the early spring queens will be shipped from our breeding yards in the South. In the early summer and fall queens will be shipped both from our southern yards and from bee-free breeding locations in North Dakota.

BREEDING QUEENS OUR SPECIALTY

We will pay particular attention to the rearing and development of superior breeding queens. We can furnish a few breeding queens, sisters of the above named record-breakers and themselves high producers, for immediate or spring delivery at prices ranging from \$10 up.

TERMS

Prices on all queens will be named as low as possible, consistent with the care and expense necessary to rear and develop superior strains. Orders will be booked as cash remittance to amount of 20 per cent of purchase price is received. Cash received with letters of inquiry will be promptly returned if sender is not satisfied with our offerings. We will produce quality rather than quantity. Early action may save disappointment. Address

CHAFFEE - CRITES BEE FARMS

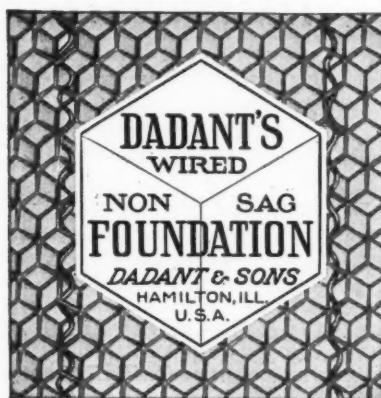
AMENIA, NORTH DAKOTA



Judit Crites, Marjean
Crites.
Achievement Girl No. C5

YOU WILL USE

Reinforced
with
Radiating
Shoulders
of
Strength



Makes
Non-Sag
All-Worker
Comb.

Patented.

IF YOU FIGURE YOUR COSTS

DADANT'S WIRED FOUNDATION

Eliminates sagging, giving greater brood area
Reduces the following items of expense:—
Hand Wiring, Drone Comb, Breakage in
Extracting

DADANT'S WIRED FOUNDATION is best used in split or slotted bottom-bar frames, but it is also adaptable to one-piece bottom-bar frames or to any style of brood or extracting frame.

ASK FOR SAMPLE. A free mailing sample will be sent free on request. **SPECIAL OFFER.** A sample of seven sheets, for either split bottom-bar or old style one-piece bottom-bar frames will be sent, postpaid, to any address in the United States for \$1. Specify size desired. Only one sample to a person.

BEESWAX. We need large quantities of beeswax and are paying good prices now. Ship to us at Hamilton, Ill., or Keokuk, Iowa., or drop us a card and we will quote f. o. b. here or f. o. b. your own station, as you desire.

WIRED FOUNDATION IS SOLD BY ALL DISTRIBUTORS OF LEWIS "BEE WARE" AND DADANT'S FOUNDATION.

SEND THEM YOUR ORDERS.

DADANT & SONS, HAMILTON, ILLINOIS

*Catalog and Prices on Foundation, Bee Supplies, Beeswax, Wax Working into Comb
Foundation and Comb Rendering for the Asking*

New York Globe Continues to Sell Honey

Our readers will remember an article in the American Bee Journal more than a year ago with reference to the campaign put on by the New York Globe for the selling of honey.

A recent article in the New York Globe states that they disposed of a total of 420 tons of honey during the season of 1921-22.

They are now putting on a new campaign in New York for the season 1922-23. This honey is all distributed through a large number of stores in New York by special arrangement with the New York Globe. They dis-

tribute all of this in 2½ lbs. and 5 lbs. A 2½ lb. pail sells for 60c and the 5 lb. pails for \$1.15. All the honey sold we believe is orange honey from California.

Montreal District Beekeepers' Association

That a more than passing interest in developing in the Province of Quebec is evidenced by the representative gathering which came together at Macdonald College, Ste. Anne de Bellevue, on Saturday, Oct. 14. Notice of the meeting was very short, but in spite of this about thirty enthusiasts met, under weather conditions that could hardly have been surpassed. The College apiary has been used for experiments in various phases of beekeeping and—under the able direction of W. J. Tawse, lecturer in horticulture—very careful records are being kept of results.

The timely subject of "Outdoor Wintering of Bees in Quebec," with discussion of methods of packing, size of cases, entrances, materials and location, were gone into very fully by Mr. Tawse, while the beekeepers crowded around the hives and followed the address with keen attention. Both two-colony and four-colony cases are being experimented with, and at the suggestion of two of the members, some further experiments are being carried out with a view to cutting down the quantity and cost of materials used; a full report is expected as soon as results are known in the spring.

Shortly before adjournment refreshments were served in the Pomology Room of the College, and a most hearty vote of thanks to Professor Bunting and Mr. Tawse was fittingly expressed by the Association's President, Dr. T. P. Shaw.

Arrangements have been made for

two further meetings this autumn, as follows:

Nov. 10—Address by C. B. Gooderham, Dominion Apiarist, on "The Two-Queen System."

Dec. 15—Address and discussion led by Dr. A. W. Maitland on the subject of "The Jumbo Hive; Advantages and Disadvantages."

The meetings are held in the Mechanics' Institute, Montreal, and all interested in beekeeping are cordially invited to send their names to the Secretary, R. B. Ross, Jr., 317 Metcalf Ave., Westmount, and to attend the sessions.

R. B. Ross, Jr., Sec.-Treas.

(Although this is in a French-speaking Province, this is a meeting of English-speaking beekeepers.—Editor.)

Miss Hasslbauer Returns

Miss Anna Hasslbauer, the efficient secretary of the Texas Honey Producers Association, is at home after an extended trip to Europe.

Pullman Conductor and Bee Expert

The Pullman News, in its November number, mentions our old friend J. R. Wooldridge, of Carbondale, who is a conductor on the Illinois Central, and gives his photo and that of his apiary. Mr. Wooldridge is an enthusiastic beekeeper and member of bee associations, besides being one of the inspectors of apiaries of the State.

New York Short Course

A short course in beekeeping will be held at the New York State College of Agriculture, Ithaca, N. Y., from February 20 through February 23, 1923. The major part of the instruction will be given by Phillips and Demuth. These gentlemen will be assisted by Mr. Geo. H. Rea, Mr. E. W. Atkins and R. B. Willson, Extension Specialist in Apiculture for New York. Several prominent members of the University faculty will lecture or give interesting addresses that will add greatly to the value and pleasure of the course. A large attendance is hoped for. Address all inquiries to R. B. Willson, Extension Specialist in Apiculture, Roberts Hall, Ithaca, N. Y.



PACKAGE BEES FOR 1923

Three-band Italians only bred for business. A 2-pound package of the MOSES hustlers with a select untested Queen, \$3.75, 25 to 100 packages \$3.50; 10 per cent books your order. Safe arrival and satisfaction GUARANTEED ON EVERY PACKAGE AND QUEEN SHIPPED.

Order now for spring delivery, and make sure of shipping date. I do not accept more orders than I can fill promptly.

W. H. MOSES, Lane City, Texas, U. S. A.



MONEY SAVED

BEE SUPPLIES

TIME SAVED

Roots goods at factory prices with WEBER'S Service

Send us a list of your wants and we will quote prices that will save you money

C. H. W. WEBER & CO., 2163-65-67 Central Ave., Cincinnati, O.

HOW "BEEWARE" SERVICE GREW



Beginning in 1872. Wisconsin men grasped the opportunity of attaining a standing in the beekeeping field.

Beginning as an accommodation to beekeeping neighbors the making of a few items of beekeepers' supplies grew as a business until it has become an accommodation to beekeepers everywhere. The demands for supplies became so heavy that one by one, four factories have been built, devoted entirely to supplying the world's honey-producing industry.

The quality and workmanship of the goods came to stand for a definite necessity among progressive honey producers and to give this individuality, the words "Bee" and "Ware" were coined into a registered trademark, "Beeware". The first plant was torn down and two others have been destroyed by fire. The first and last are illustrated on this page.

During the past years thousands of beekeepers have learned about "Beeware" at state fairs, county fairs, field meetings and schools for bee-

keepers where educational work of our Service Department keeps pace with the best. In many foreign countries, on several continents, even where the language of America is not spoken, the trademark and policies stand for a quality yet unequalled. Thousands of pieces of literature making for better beekeeping have been distributed, backing up the motto: "We can not succeed unless you succeed too."

Those who are in touch with this worldwide interest in "Beeware" feel that "Once upon a time" is a suitable way to begin a resume of the growth of the G. B. Lewis Company during its forty-nine years of existence. Honey production has grown in that time from an unknown industry to one which replaced tons of sugar for troops in the world war food shortage to one which increases Uncle Sam's natural resources enormously by the cross pollination of most fruiting plants and has assumed tenth place in the agricultural resources of at least one state of the union.

Mail and telegraph bring news of changes in the industry from every country and in order to keep our place, pre-eminent in our field, we offer our help, our advice and our experience free to all for the asking, so that you, too, may realize that there is a practical romance in the growth of "Beeware" service.

Write us any time for free help with your beekeeping problems. Ask for free 1923 catalog.

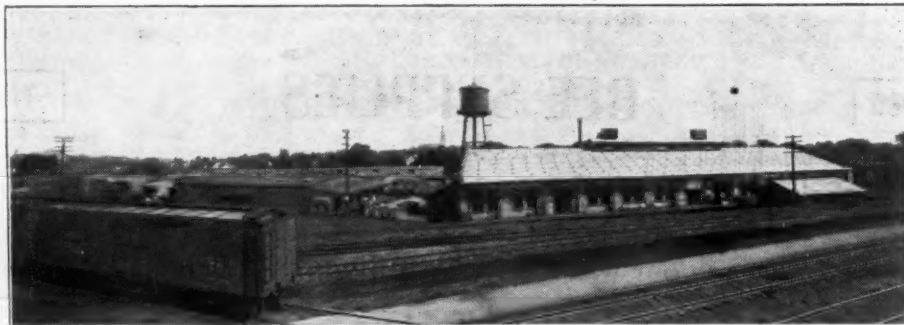


This four-page house organ devoted to beekeeping practice is issued several times each season and sent free to everyone who buys "Beeware." A free sample copy will be sent to anyone. See that your dealer sends us your name when you purchase, so you will get "Beecause."

G. B. LEWIS COMPANY

Home Office and Works, Watertown, Wis., U. S. A.

Branches: Albany, N. Y.; Lynchburg, Va.; Memphis, Tenn.; Wichita, Kans.



The mills, packing department and part of lumber yards in 1923. Office, warehouses, paint shop, garage and apiary are not shown.



VOL. LXII—NO. 12

HAMILTON, ILL., DECEMBER, 1922

MONTHLY, \$1.50 A YEAR

THE HONEY RESOURCES OF MICHIGAN

A Brief Account of the Chief Nectar-Bearing Plants of the State

By B. F. Kindig

IT is hardly possible to divide the State of Michigan into clearly defined areas which are characterized by the production of only a single flavor of honey.

Probably the alsike and white clovers secrete nectar over a larger area than any of the other plants of importance. Alsike and white clovers are found growing together in all parts of the State. White clover may be found sometimes in greater abundance in the old pastures, but alsike is found to dominate the lower lying soils in the same vicinity, so that it is hardly fair to speak of an area as wholly an alsike or wholly a white clover area. It is true that in many parts of the Upper Peninsula and in the eastern part of the Lower Peninsula, alsike is found in much greater abundance than white clover. Throughout all the rest of the State, the field is fairly well divided between the two.

The Principal Clover Areas

The soils on which the clovers grow in greatest abundance are the clays and particularly those lying low and at one time forming a part of the beds of Lakes Huron and Superior. In Chippewa, Mackinac, Baraga, Houghton and Ontonagon Counties of the Upper Peninsula, a strip along the eastern part of the State running from the Straits of Mackinac to the point of Saginaw Bay, a large part of that area of Michigan known as the "Thumb," together with parts of the adjoining counties and running southward to the Ohio line, the alsike clover predominates and grows in its greatest luxuriance. In the rest of the State where the surface soil is partly clay or loam, both white

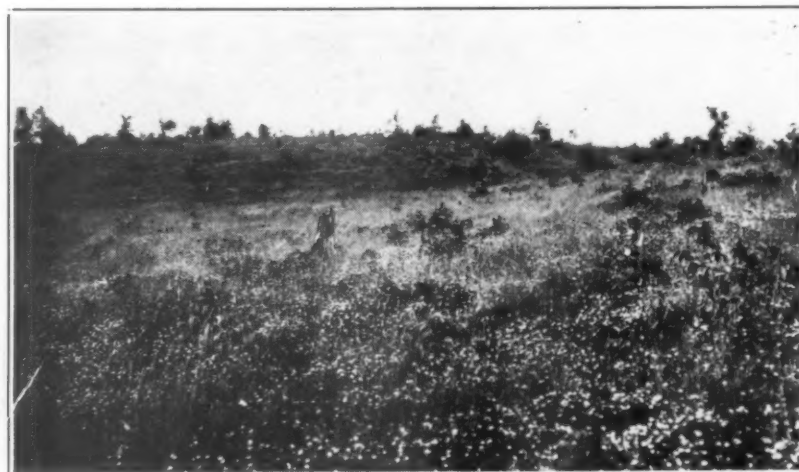
and alsike clovers are found and in many cases are the chief sources of nectar. It is largely the alsike clover which has made the Upper Peninsula famous for the clover hay shipped out from that territory.

Raspberry and Fireweed

The wild red raspberry is most commonly found in quantities of value to the beekeeper on the cut-over land of the northern part of the Lower Peninsula and in the Upper Peninsula. Very little raspberry nectar is gathered south of a line drawn east and west through Cadillac. There are, of course, small areas where the raspberry is of considerable value to one or more beekeepers, but with the increasing demand for land, raspberry is being crowded farther and farther northward. One who has never seen

an area of wild red raspberries can hardly picture the denseness of the plant growth. It is almost impossible to penetrate a raspberry thicket without literally cutting the way through. When hundreds and sometimes thousands of acres are largely covered with red raspberries the beekeeper finds that it is impossible to overstock a locality during the season when raspberry yields well. It should be said that raspberry blooms quite early and occasionally is caught by the frost. During such years there is no raspberry honey produced.

On the land where the timber has been cut and the brush lies thickly scattered over the ground, raspberry seems to propagate very, very fast. It seems that under such conditions, occasional forest fires are inevitable.



Alsike clover in Iron County, Michigan.

The fires burn up the brush and the raspberries as well, and for the next few years the principal plant in such areas is "Willow herb" or "Fire Weed," or "Indian Pink." Fireweed then furnishes a honey crop of major importance for several years until the red raspberry and other plants crowd it out. Often the territory will produce good crops of both raspberry and fireweed. The honey produced from this plant is normally water white and of excellent flavor. Fireweed is peculiar in that it secretes nectar at very low temperature. The writer has seen bees working on fireweed in the Upper Peninsula when the weather was so cool that it seemed bees would not be flying and nectar would not be secreted by other plants in the southern part of the State.

Other Sources of White Honey

Milkweed is of value to the beekeepers principally in the western and northwestern part of the Lower Peninsula. It grows in considerable abundance on the lighter types of soil in that part of the State. The amount of it as well as the area covered is growing greater from year to year. Milkweed yields a heavy, richly flavored honey which is sometimes classified as white honey and sometimes as light amber. The amount of honey secured from milkweed will doubtless increase quite rapidly in the near future.

In the northwestern part of the State, sweet clover is often associated with milkweed and often the two honeys are considerably mixed.

Sweet clover is spreading quite rapidly over thousands of acres of uncultivated land and will in the future be considered one of the major plants of Michigan. The growth of sweet clover is not confined to any one type of soil or locality. It is found growing luxuriantly on the sandiest soils as well as on the heaviest clay. Michigan soil is in general well provided with lime so that sweet clover will propagate itself wherever it has an opportunity. Hubam, as well as biennial, is being sown by farmers in all parts of the State.

Basswood is rapidly becoming only a memory. There are a few places where some basswood honey is yet secured, but the trees have been cut so closely that basswood is now considered only of minor importance in most parts of the State.

In some seasons, Canada thistle produces a large amount of nectar. Curiously, those seasons seem to be the ones when there is lack of nectar from the other summer flowering plants. It doubtless produces considerable nectar each year, but is noticed only when there is a scarcity of nectar-producing flowers.

Amber Honey

Among the sources of light amber or amber honey, goldenrod, dandelion, boneset and buckwheat are found to a certain extent in all parts of the State. Goldenrod has by far the most general distribution, as it grows on a large variation of soils and secretes nectar abundantly from

the southern part of the State northward.

The largest acreage of buckwheat is found on the lighter soils. In the northern part of the State, buckwheat is inclined to be a shy yielder, while in the southern part, it is depended upon from year to year.

The Upper Peninsula

The location of the greatest untouched resources of nectar is the Upper Peninsula and the northeastern part of the Lower Peninsula lying between Saginaw Bay and the Straits of Mackinac.

According to the census report, there are about 500 colonies of bees in the whole Upper Peninsula. The report is, of course, incorrect, but it goes to show that the Upper Peninsula has but a few colonies of bees as compared with the size of the area. Bees are being kept in every county and in several counties apiaries of considerable size have been maintained over a period of many years. There is no longer any question as to whether bees can be kept there successfully. Climatic and floral conditions are both favorable. Only a small percentage of the land has been reclaimed and it will be many years before agriculture will develop to the point that the areas of wild flowers will be seriously reduced.

The whole Upper Peninsula and the northeastern part of the Lower Peninsula depend to a very large extent for their supply of honey upon the beekeepers to the south and west.

The roads are good between the principal cities and the schools are maintaining a very high standing. The beekeeper may live in a city or town and operate apiaries for many miles in any direction with little danger of infringing on the territory of a neighboring beekeeper.

The Fall Flow

Much has been written regarding the excellence of Michigan clover, raspberry and other white honeys, but the prevalence of a flow of light amber honey in the fall of the year seems to have been uniformly overlooked or disregarded. A fall flow of greater or lesser proportion is secured by practically every beekeeper in the State. In a large part of the State the fall flow furnishes not only an adequate amount of honey for winter stores but frequently a valuable surplus. It is not unusual for beekeepers to secure an average of 50 pounds or more per colony from the various fall sources. Goldenrod, Spanish needle, boneset, buckwheat, blue verbena and some of the asters are the chief sources in the fall flow.

The fall honey insures adequate stores for winter and for early brood rearing. It saves considerable outlay for sugar and stimulates late brood rearing so that colonies generally go into winter strong with bees. In a large part of the State the fall honey is considered of good quality for wintering. However, for best results, 10 pounds of granulated sugar syrup should be fed at the end of the fall honey flow.

There is a host of plants which

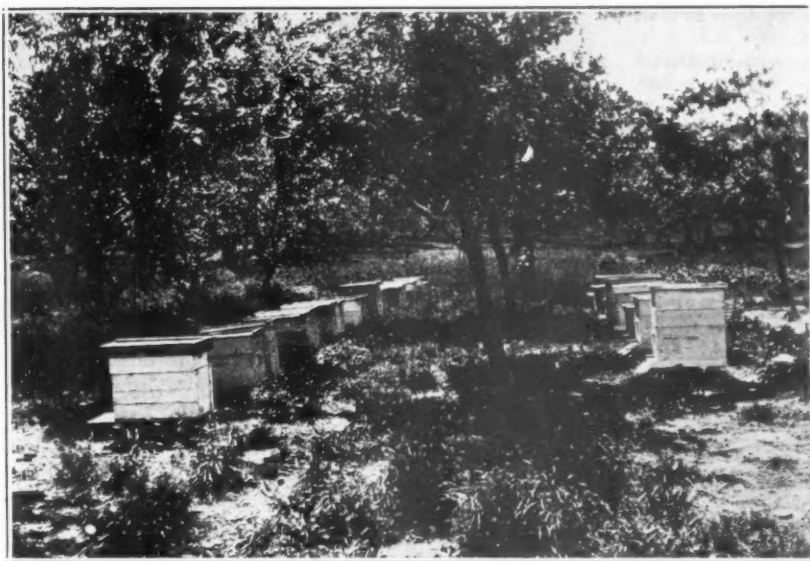


Kindig's beekeeping map of Michigan.

are, taken collectively, of greatest importance to the beekeeper. There are many sources of nectar which the bees take advantage of during the early spring period. All parts of the State are well provided with minor honey plants which furnish nectar and pollen for brood rearing.

In thinking of the nectar-producing areas, it must be considered that this State was covered with the great glaciers and that we therefore have

a very great variety of soils. It is not unusual for a section of land to be made up of several grades of clay, sand and muck. Under such conditions it can be readily understood that there is a great mixture among the flowering plants. This is of distinct advantage to the beekeeper, as there is really no considerable length of time that there is not at least one source of nectar in bloom.



Clarence Langley's Michigan apiary.

A TYPICAL COST ESTIMATE FOR A YEAR'S CROP

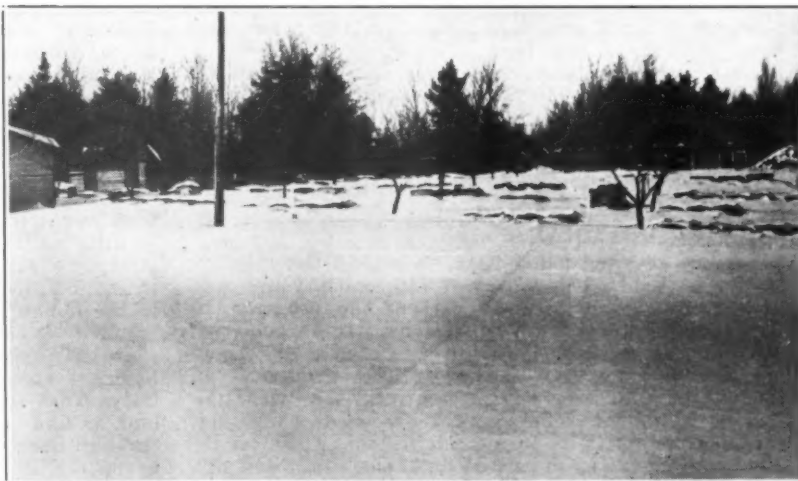
By Elmer T. Beach

OUR year that was such a beauty up to June 15 is ended. The promises held out have not been realized. About June 15, and just as the honey had begun to walk in from the white clover, we had an unprecedented downpour for two days. Instead of turning off warm, it turned off cold, and remained cold all the rest of the clover flow. Result, a long but very light yield. Then it finished up the year with not another drop of rain. Not even in the usual equinoctial period have we had sufficient rain. Fall crop was an absolute failure in my yard, and crop outlook for next year is poor.

I have just finished figuring my cost. You may be interested. I made more increase than I should have attempted under the conditions, but here is the result. There were 12 producing colonies, spring count, 5 in old style Dadant and 7 in 10-frame Langstroth:

Debits	
Nov. 1, 1921, honey left on hives	\$49.00
My production labor for year	42.00
Insurance, taxes and site rent	18.00
Depreciation on hive stock investments	23.73
Depreciation on central	

plant investments	10.80
6% interest on hive stock sound value	23.24
6 % interest on central plant sound investment	6.24
5-lb. pails used	8.78
Labels and extracting	7.06
225 lbs. sugar fed for winter	15.75
Total cost of production	\$204.60



An Upper Peninsula apiary in winter.

Credits Allowed

3 queens reared and taken for increase	\$ 3.00
2 swarms and queens taken increase	10.00
New brood combs built added to invest.	17.20
New extracting combs built added to invest.	12.00
27 frames bees, brood and honey taken for increase	27.00
Cappings wax	1.66
Nov. 1, 1922, honey left on hives	48.00
Total credits	\$118.86

Net cost of production----\$ 85.74
I produced 707½ pounds white clover honey, fall amber being complete failure.

Gives average cost of production per 100 lbs., \$12.11.

Average yield per colony, 59 lbs.
Average yield per colony 5 Dadants, 85.3 lbs.

Average yield per colony 7 Langstroth, 40.1 lbs.

Michigan.

A Special Course for Beekeepers at Ames

To meet a growing demand for special training in beekeeping, the Iowa State College, at Ames, is offering, among other courses, for the second time, a 12 weeks' winter course in this subject. It opens January 12 and closes March 23, 1923. This is a specialized course for those who may have had practical experience but desire more definite information regarding the industry. The work is largely of a practical nature. During the twelve weeks the student may take other subjects in addition to beekeeping. Tuition is free to residents of Iowa.

The course covers such subjects as: Bee Diseases, Apiary Management, Life History of the Honeybee, Factors Influencing Nectar Secretion, Outapiary Management, and General Apiary Practices. Those interested should communicate with Prof. F. B. Paddock, Iowa Agricultural College, Ames, Iowa.

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THE EDITORS' VIEWPOINTS

CENTER OF GRAVITY

In "L'Apicoltura Italiana," Prof. G. Bolle translates interesting statements from Prof. von Frisch of Germany, in which he explains that a bee with empty honey sack carries her hind legs extended backwards under her abdomen, while the bee with a full honey sack carries those same posterior legs forward under the corslet to help balance the center of gravity. It looks plausible.

AN IMPORTANT BEEKEEPING PUBLICATION

Attention should be more generally called to the "Archiv für Bienenkunde," edited by Ludwig Armbruster in collaboration with Dr. von Buttel-Reepen. It is published by Theodor Fisher, Freiburg im Breisgau.

Each issue of "Archiv" makes an exhaustive study of a particular phase of beekeeping which serves as a sort of monograph on this subject. No student of beekeeping can afford to be without it for reference work.

FOULBROOD ALONG ILLINOIS BORDER

There is much criticism of Illinois across the border in Indiana. The inspectors of that state find that there is great difficulty in successfully handling disease, especially where the two states immediately join, since after a district has been once fairly cleaned up disease comes across the line again from the Illinois side. This is certainly a disgrace to Illinois, and it is time something be done by this state, which was once so important in beekeeping matters. Certainly more effective inspection work is necessary before the beekeepers can expect safety from disease.

AGE VS. EXPERIENCE

We often hear the remark that so and so is a well-informed beekeeper, because he has kept bees for 40 or 50 years. We have many beekeepers who have had bees that length of time, and it is usual that the beekeepers of most note have had long experience. However, it must be remembered that time is no measure of knowledge. There are many 40 year beekeepers who get much smaller crops than those who have been keeping bees for only a few years but who have diligently studied their subject. There is a tendency to place a value on years instead of intelligence.

INSPECTION IN INDIANA

It was our privilege, last year, to attend the meeting of beekeepers held at the apiary of Jay Smith, Vincennes, Ind. It had been planned, as part of the program, to demonstrate the treatment of American foulbrood, and an attempt was made to locate a case of this disease in Knox County. However, although the committee in charge of this went over a large territory, they were not able to find sufficient material for use at the meeting. It was reported by those in attendance that this was indeed a happy condition, since at one time foulbrood was quite well spread in the county. They stated that the efficiency of their inspection force had in a large meas-

ure been responsible for the elimination of disease.—G. H. C.

THE EFFECTIVENESS OF EXTENSION WORK

The well trained specialist in beekeeping who is devoting unselfishly his time and effort in extension activities among beekeepers, in the different parts of our country, deserves much praise for his devotion. These men are often much discouraged in their attempts to serve their fellow workers. Yet, with all, there is steady progress made by such efforts, even when things seem most unresponsive. The stubborn man causes the most discouragement, but it should be remembered that such a man often takes advice and acts on it, silently, when he thinks there is no one around to see him. We have seen many instances of this. The seed sown by the extension worker will yield a crop long after he has disappeared from the scene.

IGNORANCE OF BEEKEEPING

Those who are well versed in the technic of any given line of human endeavor often caustically criticize the ignorance of the lay public in their particular line. On the other hand they, themselves, display the same dense ignorance concerning subjects which do not come in their training.

This is also true among beekeepers. It should be remembered that we are all ignorant, and that no one individual commands a premium on knowledge. It is up to the beekeeper, therefore, to correct the mistaken idea of the general public relating to beekeeping and its products, but in doing so to be kindly.

QUEEN WEARING OUT

One of our most successful queen breeders recently called our attention to an observation which he made relative to the wearing out of queens. He states that, according to his experience, queens which lay slowly and continuously over long periods wear out much quicker than queens which lay the same number of eggs over short periods. This is an argument for frequent requeening in the South and in other regions where queens are worked continuously.

AN INTERESTING DIFFERENCE

At one of our large state fairs, during the past season, one of our staff conversed with a man who was reported to have considerable experience in hunting bee trees. He made the remarkable statement that "Wild honey is one-half sweeter than tame honey." You can take it for what it is worth.

BEEKEEPING IN SPAIN

The "Revista Social Y Agraria," of Madrid, is establishing an apiary department. The few Spanish editions of modern bee books have evidently helped to draw the attention of progressive men in Spain to the new methods. The apiary department of this magazine, entitled "La Colmena" (The Hive), carries the Latin motto, "Vade ad apem et discis sapientiam" ((Go to the bee and learn wisdom). It is nicely illustrated. Welcome to this new organ.

A CLEAN HONEY HOUSE

We have been in the habit of using rooms with either a concrete floor or a rough board floor for a honey room. The result is that our honey rooms don't look as clean as they ought to. In fact, a honey room often looks about as dirty as it is possible for any room to look. Honey is sticky, to say the least, and does not promote cleanliness. Yet, it is very important, if we are to have visitors in the honey house, to have the room, in which honey is handled, as clean as possible.

In the present number, Mr. C. H. Wolfe tells us about having a room finished in white enamel, for honey handling. That is a happy thought, for a honey room should look as fine as the high quality product that passes through the apiary to the retailer or to the consumer. Let us bear it in mind. Mr. Wolfe deserves thanks for his suggestion. It will pay, in the long run, to have an aristocratic looking honey room.

HONEY AND SUGAR VERSUS WAX PRODUCTION

The scientists and student apiarists who have read Huber's "New Observations Upon Bees," will remember that in his experiments upon the production of wax, he secured a greater amount of it from feeding sugar, white sugar, brown sugar, and maple sugar, to bees than from similar amounts of honey.

His experiments do not give the proportion of wax secured from feeding honey; he contents himself with saying that the proportion secured was in greater abundance with sugar, and especially with brown sugar. The proportion from white sugar was a little less than one-eleventh of wax; the proportion from brown sugar was a little less than one-fifth. We are of opinion that there were probably other factors, such as temperature, condition of the bees, etc., to affect the result and cause this great discrepancy.

We are now in receipt of a lengthy letter from our esteemed correspondent and friend, Mr. M. Barthelemy, of Marseille, France, in which he describes to us his experiments in the production of wax from sugar and from honey fed to bees. Like his renowned precursor, he finds that more wax is produced from diluted sugar than from honey. The results obtained by Mr. Barthelemy are 7.18 to 1 from sugar and 22.6 to 1 from honey.

Although it is quite probable that natural results, during a heavy flow of nectar, would improve the proportion very much, these experiments still confirm the opinion expressed by many investigators that the production of wax in bees may be compared to that of butter or of fat in animals and that the proportion of honey required to produce a pound of wax renders it advisable to economize as much as possible in this direction.

THE INTERNATIONAL CONGRESS AT MARSEILLE

The Congress of Marseille apparently did not have a very great attendance from the world at large. Yet we are informed that there were delegates there from Belgium, England, Luxemburg, Switzerland, Italy, Poland and Canada. None from the United States. When we consider that Europe is hardly recovering from the lamentable effects of the great war, we cannot be astonished at the sparse attendance. For instance, how can delegates come to such a Congress from Germany when a German capitalist, with an income of say 20,000 marks, sees that income reduced, by the financial depression, to an income of \$5?

An automobile excursion, undertaken by several delegates, under the care of our enthusiastic friends, the beekeepers of Marseille and vicinity, brought out some interesting discoveries. For instance, they visited a moving apiary of forty Langstroth hives arranged on a trailer, 20 on each side, with a passage in the center for the apiarist. The flight entrances are arranged on each side. When it is desirable to move to a new spot, the entrances are closed in the evening and an automobile hitched to this trailer, taking this moving apiary, without trouble, to a new location. We had read of floating apiaries and of transporting bees in auto-trucks; in fact, we have done some of the latter ourselves, but we had never yet read of a movable apiary permanently on wheels. This peculiar arrangement is the property of a Mr. Baudin, who with three sons, conducts several other apiaries.

HUBAM TO GERMANY

Mr. Paul Ranft, of Oststr. 39, Leipzig, Germany, writes us that the German beekeepers have heard of Hubam and would like to try it. But German marks are so cheap (\$1 was worth then 4400 marks) that they cannot afford to send money to this country to buy seed, and he asks that small sample packages be sent from America for free distribution, by such American beekeepers as are disposed to help. There will surely be some response, will there not?

GREETINGS

The editor acknowledges, with pleasure, a card of greetings, received from the National Italian Meeting of Beekeepers, of October 21, signed by Messrs. Cotini, Balducci, Carlini, Bovelacci, Piana and Asprea, all leaders in progressive beekeeping. Thanks, gentlemen.

TARSONEMUS

Mr. P. Prieur, editor of "L'Apiculture Francaise," writes us at the date of October 25: You Americans appear to have become frightened about the *Acarapis woodi*. Do you think it does not exist in the U. S.? It seems to me that a number of cases of so-called paralysis reported in your magazines, in which the population of the hive was much reduced must be caused by this parasite. It takes a favorable condition for this mite to develop and it appears to cause ravages especially in moist regions with misty conditions. The sulphur treatment advised for paralysis by Poppleton gives very good results for the *Tarsonemus*, and I believe it will be readily overcome.

A LONG SUMMER

It may be worth while to record that, after a succession of the most plentiful crop of fruits of all kinds, that we have ever harvested, and a fair crop of honey, the pleasant season is not yet closed at this writing, November 6. A very few light frosts occurred early in October, but there are still some green beans and some ears of sweet corn fit for roasting in the garden. This is the latest season for vegetables to keep fit in the garden, that we have ever seen. A true Indian summer.

The senior editor and his wife passed the 47th anniversary of their married life on the first day of November, and hope to be able to see their Golden Wedding day in good health.

BEEES IN HOTHOUSES

We have had several enquiries of late concerning the keeping of bees in hothouses during the winter, some beekeepers wanting to keep the hives entirely within the hothouse, for the purpose of fertilizing blossoms, others wanting to keep them there for wintering only.

We have had no experience in keeping bees for the fertilization of blossoms, but from all we can learn, a great many bees die by worrying themselves against the glass trying to find an issue to the open air. It is necessary to keep colonies in hothouses where they want such plants as the cucumber to have their blossoms fertilized so as to bear fruit, and this is successful. But the colonies do not gain in numbers. In fact they become depleted, and keeping bees in hothouses for their own benefit is not advisable.

Our experience with bees in hothouses has been where the hives were located within the hothouse, on the south wall, with exit to the outside left free for them. In this case the bees are of no value at all to the plants within, but they derive great benefit from the warmth of the hothouse, breed early and are ready for work just as soon as there are blossoms in the fields. I do not believe that there is any better location for hives of bees than such a position, provided, however, they are not induced to fly in unsuitable weather by disturbances, the jarring of the wall in which the hive is placed or other annoyances.

Some day, I will give a full account of my experience with hives in a hothouse. If it were not for the cost of such location, I would like to have all my bees within a hothouse.

MISSOURI MEETINGS

We have received notice of the coming Missouri Congress of beekeepers in Columbia, during Farmers' Week, January 16 to 19. They wish to discuss foulbrood, as there is a strong current of influence holding that foulbrood is not a contagious disease. The meeting of beekeepers is to be held during the first two days of the Farmers' Week, January 16 and 17.

A meeting was held at the home of Frank Schumacher, Kansas City, on the 12th of November, of which we received notice through Mrs. C. W. Baxter, Secretary. This association calls itself "The Heart of America Beekeepers' Association," a very proper name, indeed, since Kansas City is in the geographical center of the United States. We understand that some of the officers of the Missouri State Association were present and that some very good addresses were made by different noted beekeepers.

SELLING QUALITY HONEY

By C. H. Wolfe

IN selling our honey crop we begin in the bee yard, for we stress quality at every step. Our honey is produced above excluders, and principally in half-depth frames. It is hauled to a central extracting plant, fully screened and made bee-tight, and equipped with electricity, steam, and sewer connection. Here the honey is sorted before extracting,

is stacked high against the walls; neatly-labeled pails and cans are piled wherever there is room, and a good display of bottle goods, from the 2-ounce "individual" up through the various sizes to quart jars, are placed where they can show off best. Comparatively few sales are made in less than quart sizes, but the others help to make an attractive display.



Wolfe's display at the county fair.

and each grade run into separate tanks. Cappings are kept separate, and produce a slightly cheaper grade of honey. We heat our honey to 150 degrees before double-straining, and run it into gravity tanks, from which it is canned through a funnel strainer. The entire establishment is kept as clean and sanitary as steam and water and good care can make it. Having gone thus far we feel that we have taken the first and most important steps in our local selling campaign.

The Honey Shop

Our extracting plant is some distance from our residence. After several years of back-porch selling, we this season built a small room with outside entrance at one side of our residence, which, through the town's growth, is now at the very edge of the business district. This room we use as a honey salesroom and office, "The Honey Shop," as we call it in our ads.

The Honey Shop is as dainty as the "Missus" can make it; woodwork in white enamel, low sliding windows curtained in white, white enameled table and upright showcase, neat linoleum rug on the floor. And honey stacked everywhere! The magnitude of our stock—in the eyes of the average caller—creates a good impression. Selected comb-honey in the usual glass-front cases

Advertising

We use roadside signs, and find that they pay. We exhibit at the county fair, and think it good advertising, the direct sales there are negligible. We supply, gratis, our individual jars of honey for luncheons of the Commercial, Rotary and sim-

ilar clubs and organizations. We think this is worth-while advertising, too. But in planning a local selling campaign the local newspapers should certainly be reckoned with. We plan to spend about \$100 yearly in local advertising. We generally use about six inches space, set single column, just like ordinary reading matter; the only display being the single headline, about half an inch high. The headline always contains the word "Honey" in some combination, as, "Say Honey!" for example. Then follows our message, stressing the quality of our goods, but always giving prices, which are invariably a little higher than ordinary honey is being quoted.

We seldom run the same wording in our ads. more than twice. Often we change every insertion, telling the same story in different language. Last August I ran a series of short stories on bees and honey production, giving each day one single interesting phase of the industry; also telling why some honey is better and costs more to produce, and must sell at a slight advance over ordinary honey. The articles were numbered, and one ran each day for a full month. At the end of each ad. I ran my Honey Shop prices. They made many new customers and literally scores of persons have spoken of reading them regularly. In direct returns, considering first cost, the ads. did not pay. I ran them too early in the season, for one thing. But I am hearing from them right along, and indirectly I consider their cost a good investment.

I hold my retail price high enough so that reputable hucksters can pay me a stiff wholesale price and sell my goods year after year at a profit, in competition with cheaper honey, even as we do here in our home town. One such salesman who has sold my honey over the same territory for five years, has sold to date this sea-



Wolfe's honey sign.

son over half a carload direct to consumers, for which I receive from him a dollar a can more than other honey can be had for. And he shows no disposition to change to a cheaper article.

Colorado.

THE HUBER LETTERS

Observations on the Secretion of Wax

(Continued from November)

The following observations furnish us indications of the presence of honey in the flowers. They were made upon a rather remarkable fact, which was not known of our forebears; it is that there are two kinds of workers in the same hives; the ones susceptible of acquiring a considerable size after they have taken all the honey that their stomachs could contain, and are intended generally for producing wax; the others, whose abdomen does not change perceptibly in its dimension, take or keep only the quantity of honey which is necessary for them to live and give out to their companions the surplus which they have gathered. They are not in charge of the provisioning of the hive, their particular functions are caring for the young; we will call them nurse-bees or small bees, in opposition to those whose abdomen may be dilated and who deserve the name of comb-builders.

(Note. We now know that, in the hive, the division of labor, observed by Huber, is based upon the age of the workers and that each of them fulfills in her turn the different functions, being at first nurse, then wax-worker, then field worker.—Editor. These differences were made very plain when the yellow Italian bees were brought from Italy to black bee regions, for the different work of the workers plainly showed itself as they grew and replaced the common bees in the hives, where Italian queens were introduced.—Translator.)

Although the exterior signs by which the bees of both sorts may be recognized are not numerous, this distinction is not at all imaginary.



Corner of the Honey Shop.

Anatomical observations have taught us that there is a real difference in the capacity of their stomachs; we have made sure through positive experiments that the bees of one kind could not alone fulfill the functions which are apportioned out between the workers of the same hive.

In one of these tests, we painted with different colors those of each class to observe their behavior, and we did not see them change their role.

In another hive, we gave to the bees, deprived of their queen, some brood and pollen. We immediately saw the small bees feeding the larvae,

while those of the wax-making class took no care of them.

When the hives are full of combs, the wax-producers disgorge their honey into the ordinary storage cells and make no wax; but if they have no cells to deposit it and if their queen finds no empty cells to deposit her eggs, they keep within their stomach the honey which they have gathered and, at the end of 24 hours, the wax oozes out between their rings; then the work of comb-building commences. One might think that, when the fields do not furnish any honey, the wax-workers might pounce upon the provisions stored in the combs, but they are not permitted to touch them. A part of the honey is carefully put away, the cells in which it is deposited are sheltered with a capping of wax which is removed only in case of extreme need and when it is impossible to secure any elsewhere; they are never opened during the good season. Other cells, always open, supply the daily needs of the colony, but each bee takes only as much of it as she needs to satisfy a pressing want.

One does not see the wax-builders show themselves at the entrance of the hive, with big abdomens, when they return from the field and have made a great harvest there; they produce wax only when their hive is not filled with combs.

One conceives, from what I have just said, that the production of the waxy substance depends upon a concurrence of circumstances which do not always present themselves. The small



One of Wolfe's apiaries.

bees also produce wax, but always in amount very inferior to that which the true wax-workers elaborate.

Another characteristic through which an attentive observer will not fail to recognize the moment when the bees gather enough honey upon the flowers to produce wax, is the odor of honey and wax which is strongly emitted from the hives at that time, an odor which does not exist with this intensity at any other time. From these data it was easy for us to recognize whether the bees worked at comb building in our hives and in those of the farmers of the same canton.

In 1793, the inclemency of the season delayed the going forth of the swarms; there were none in the country before the 20th of May; the greater number of the hives swarmed in the middle of June. The country was at the time covered with bloom; the bees harvested much honey and the new swarms worked in wax-building with activity. On the 18th, Burnens examined 65 hives; he saw wax-workers at every entrance; those which entered the old hives immediately put away their crops and built no combs, but those of the swarms converted their honey into wax and hastened to prepare cells for the eggs of their queens.

On the 19th it rained in intervals; the bees flew, but one could not see any wax-workers, they brought only pollen; the weather was cold and

rainy until the 27th. We desired to know what was the result of this condition of the atmosphere.

On the 28th, we raised all the baskets, Burnens saw then that the work had been interrupted; the combs which he had measured on the 9th had not received the least increase, they were of lemon color; there were no longer any white cells in any of those hives.

On the 1st day of July, the temperature being higher, the chestnuts and the basswoods in bloom, we again saw the wax-builders. They brought back much honey, the swarms lengthened their combs, we saw everywhere the greatest activity; the honey crop and wax building continued until the middle of the month.

The year was, therefore, very favorable to the work of the bees; I attributed it in part to the condition of the atmosphere, which was loaded with electricity, a circumstance which has great influence upon secretion of honey in the nectaries of flowers. I have noticed that the crop is never more abundant and the wax-working more active than when a storm is preparing, when the wind is in the south, the air moist and warm; but too lengthy hot weather, the drouth that follows, cold rains and north wind, suspend entirely the elaboration of honey in the plants and consequently also the operations of the bees.

(To be Continued).

to give the packing another trial. Twenty-one cases were made which permitted 4 inches of packing on the bottom, 6 at the sides and 8 or 10 on top. For entrances, tunnels were made to slide in through openings in the cases and fit snugly in the hive entrance. These gave an entrance one-half inch by 6 inches when left wide open. The first winter these were contracted to one-half inch square. They came out in good condition, although some were slightly damp. Several started brood rearing early in February. I felt that packing was a success, but still left something to be desired. Next season the entrances were left open 2 inches, and a decided improvement was noted.

Last winter I decided I would keep a careful record and determine to just what extent packing conserved both bees and honey. Eighty-four colonies were packed with dry, well seasoned sawdust which was firmly tamped in to make a solid mass that would prevent the cold winds from working through. The conditions were marked on the hives. Another 150 colonies were wintered on their summer stands with no protection, and they were in the same condition as the ones packed. All had abundant stores, young queens, and were of medium strength. This time the 6-inch entrances, in the winter cases, were left wide open all winter. I am thoroughly convinced that these larger entrances give decidedly better results in our locality.

The bees were examined at different times during the winter and were in perfect condition in every respect. In fact, when examined about the middle of March, I could see no difference whatever in their condition from what it was when they were packed in the fall. Of course, there were some few bees that died off during the winter, but they were carried out by the bees and removed some

TO PACK OR NOT TO PACK

By Jay Smith

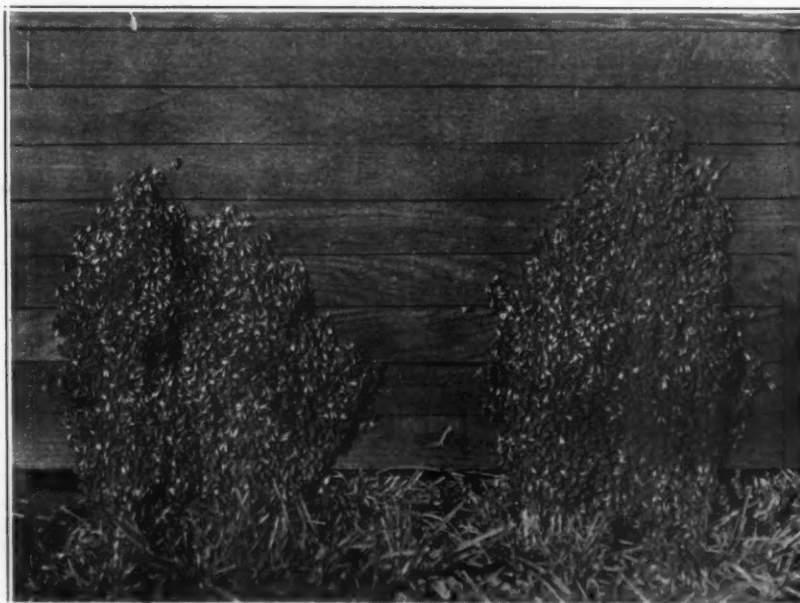
PERHAPS no one feature in bee-keeping is discussed more than the wintering problem. Many and various are the views on outdoor wintering. Some believe in packing and some do not. Those who believe in packing are not at all united on the method. Some pack the top only; some pack all parts of the hive except the front, on the theory that on warm days when the sun shines the bees will warm up and take a cleansing flight. For packing material, nearly everything has been used, dry leaves, wet leaves, straw, chaff, dirt, planer shavings and sawdust.

Here is my experience. The reader may take it for what it is worth, if anything, remembering there is no compulsory clause attached. Nineteen years ago I had some winter cases made whereby all colonies were packed, except the bottom, about a foot deep in planer shavings. The bottom was left exposed, believing the moisture would condense there and run out. In the spring I found the hives damp. The bees came out in fair condition only. I noticed, however, that they built up that spring in a wonderful manner. I decided the cases were not a success, however, and discarded them.

I then protected the tops only, by the use of a cork cushion. This gave very good results in mild winters, but when we had a very cold one the bees

came out in such depleted numbers that the colonies could not be brought up to the proper condition for the honey flow.

Five years ago I studied the quadruple case, as advocated by Messrs. Demuth and Phillips. Their results seemed so conclusive that I decided



Bees clustering outside packing case.

distance, so there were no dead bees around the hive cases; but as far as appearances went the bees were in the same condition as when packed. The bees that were wintered with no protection had a quart or more each of dead bees in front of their hives. These bees were examined from time to time and those that were protected averaged 50 per cent stronger than those that were not. When those outside had two frames of brood, those packed had three. Later, when those outside had four frames, the packed ones had six. In a very short time the packed bees had brood in all ten Jumbo frames.

Our first stimulative flow began about the first of April, from peaches, as there are hundreds of acres within range. I noticed that the packed bees kept up a loud roar all the time, which convinced me that their entrance was still entirely too small. Another thing, I noticed they scattered their brood more than those outside. When they are cool they keep their brood in a compact mass, and as they get warm they have a tendency to spread out more. This lack of sufficient ventilation caused them to spread out in an attempt to cool off. At night, even in cool weather, they would cluster on the outside of the cases. Upon several occasions they became numb with cold and dropped to the ground. They were gathered up in the dust-pan and put back, so not many were lost. Those that were not packed did not cluster out, from the fact that they were not too warm, and also from the fact that they were not strong enough. When the bees were unpacked, brood was taken from them and given to those outside, so they

were all built up for the flow.

In the future I shall make the entrance tunnel the entire width of the hive. In cold weather I shall contract it down to from 3 to 6 inches, depending upon the weather; but when the bees begin to get strong and when the peaches bloom, the entrances can be opened the width of the hive. With this change in the entrance I believe the quadruple case would be perfect and pay big dividends, even in our mild climate. Farther north it would pay still better, but more packing should be used. I believe many make the mistake of not giving enough packing, or use material that is too porous, so that the wind blows through it and cools the hive. Then, when a warm day comes, the sun does not have time to warm up the hive so that the bees can have a cleansing flight. I noticed in our apiary that the packed bees flew out as soon as the unpacked ones. This was due to the fact that they had plenty of dry sawdust, which kept the temperature up above 50 degrees in their hive at all times, and when the weather was suitable they were ready to come out.

Many have emphasized the importance of windbreaks for bees, but if you make the packing so dense that the wind cannot work through, it will be the best kind of windbreak. Upon several occasions when there was a high wind, and the temperature outside 10 above, a thermometer was put down in the sawdust next to the hive, when the temperature was found to range about 50 degrees, and it registered the same on both the windward and leeward sides.

(The cut shows the bees clustering out during early April.)

sugar water. The few bees which found the sugar were marked by a color spot so that they could be again recognized. After the bees had been trained for a few hours to the blue color, during which time the position of the blue paper was changed frequently to make sure that the bees were really attracted by the color to the feeding spot and not by local memory, a decision test was made. The papers were first of all taken away and replaced by exactly equal but fresh papers. On each paper an empty glass was again placed. One was also placed on the blue paper to which a new position had been given. All the bees immediately flew to the blue paper, notwithstanding the fact—which needs to be emphasized—that the glass did not contain any sugar water.

It is clear, therefore, that bees possess a sense of colors. The bees trained to the blue color saw the color and looked for it at once. A totally color blind man would not have been able to distinguish the piece of blue paper from the gray ones of equal lightness. The ordinary photographic plate is also color blind and consequently in photographs we cannot distinguish blue paper among others. Frisch then obtained the same results with yellow and with black and with white.

In Germany, where it is the custom to place bee hives closely side by side, and sometimes even on top of each other, this discovery was of advantage, for now the apiarist can paint his hives in such a way as to facilitate the flight of bees.

The researches of Prof. Von Frisch have received further confirmation through Prof. Kuhn of the University of Gottingen, who extended the test in a very ingenious manner and was able to verify that bees even see colors which are invisible to man. It is well understood that white sunlight is composed of various colors, such as is shown to us by any rainbow. In the drops of a rain cloud sunlight is broken into individual elements and we see clearly the following series of colors: red, orange, yellow, green, blue, indigo and violet. This series of colors is called the solar spectrum. We can produce such a spectrum artificially at any time if we allow white light to fall through a triangular piece of glass, the so-called prism, then the light is also decomposed into the same series of colors. For a long time tests have shown that there appear in the spectrum, beyond the red, other rays which are invisible to us and which distinguish themselves especially through their heat effects. These are the so-called ultra-red rays. On the other end of the spectrum, too, there are invisible rays in the violet, the so-called ultra-violet rays, which are especially effective chemically.

Many years ago the well-known English natural philosopher, John Lubbock, reported that ants apparently do not see the ultra-red rays, but they do see the ultra-violet. The

THE COLOR VISION OF BEES

By Dr. Von Buttel-Reepen

IT is not only of scientific interest to know whether or not bees can see colors, but the practical apiarist will often profit if he knows the truth of this question. Until a few years ago people generally believed that bees see colors just as man does. When it is noted how bees seek their food from flowers this conclusion seems justified.

It has been known for some time past that the most diversified natural flowers are sought by bees and also that artificial flowers under certain circumstances are searched for honey.

We can correctly infer, therefore, that it is not odor alone which attracts bees to flowers, as has been ascertained, but that color, too, is a guide. Color has about the same effect on bees as an inn sign which tells thirsty people that they may there get food and refreshment.

A few years ago an eminent scholar, Prof. Dr. Von Hess, in Munich, on the basis of thorough tests, asserted that bees are color blind and that they do not see the colors at all. For some time the authority of his name held such sway among physi-

ologists that his assertion was believed. Zoologists, however, and especially scientific bee investigators, at once discredited this theory. Dr. Von Frisch, especially, after careful researches, established that the statement of Prof. Von Hess was only partly right. He proved that bees are only partly color blind, that they easily distinguish the colors yellow and blue, and black and white, and that they evidently distinguish them as such.

Although the totally color blind man cannot see colors at all except as a more or less light gray, the bee sees these colors individually while, according to the test of Frisch, it mistakes the following colors for each other: Orange-red for yellow, blue for purple, red for black, blue-green for blue, orange-red for green. The bee, therefore, is not totally blind.

Frisch placed on a table quite a number of equally large pieces of paper of various shades, light gray, medium gray, up to black, and among them an equally large piece of blue paper. On all the papers watch glasses were placed and on the blue paper the watch glass was filled with

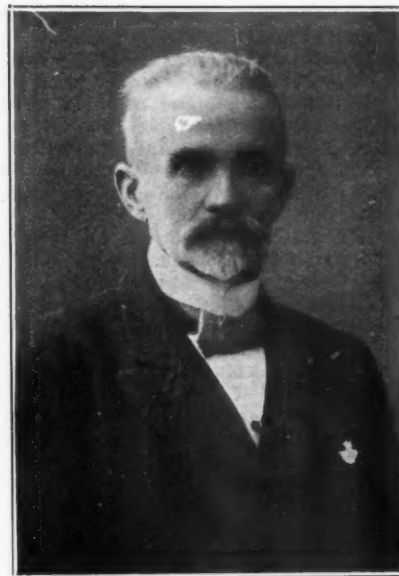
Swiss scholar, August Forel, confirmed this a few years ago.

Kuhn has extended these tests to bees. After having accustomed bees to fly into a room where sugar water was offered them on a table in a narrow porcelain trough, he then permitted a spectrum, by means of a prism, to fall on the table top. He placed the feed trough on the blue color stripe and then on other colors. After a few hours the bees were so well trained to the respective colors that when the spectrum was shifted on the table ad libitum, first on this part of the table and then on the other, the bees always looked for food on the colors to which they had been trained.

During these tests all precautions were taken to render them scientifically incontestable.

In this experiment it became evident that bees possess a special and specific sensitiveness for the ultra-violet rays. If by the deviation of all other rays there was thrown on the table by the apparatus only the ultra-violet light, at random, the bees, trained to the ultra-violet color, found that spot where the light hit the table and which was invisible to the experimentors. This fact was established by means of a speedily prepared chemical mass (barium platina cyanuric acid) spread over the surface, which flashes up when ultra-violet rays hit it. We are able in this way to convince ourselves of the existence of such rays. It is evident from these experiments that bees see quite differently from man.

Oldenburg i. Old.



Dr. Lecejewski, head of Polish Beekeepers' Association and author of several books on bees.

BEEKEEPING IN POLAND

A Short History of Polish Beekeeping Demonstrating the Rapid Strides Made since the Re-Union of the Polish Nation Four Years Ago

By Prof. Dr. F. Leciejewski

BEEKEEPING has been practiced from the earliest times in Poland. It is related that Piast, the first ruler of Poland, offered honey and mead at the marriage of his son.

At this early date beekeeping was confined to the labor of getting bees from the trees in the forests. In time, these bee hunters were organized into a "trade," which obtained royal privileges. They controlled the securing of honey, were allowed to excavate logs in the forests, put new swarms into them, practiced other rights, and punished offenders who transgressed. The forests resounded with the happy hum of the bees and gladdened the hearts of the bee hunters. The honey harvest was relatively large, and Polish honey found

its way to many lands.

This continued until the nineteenth century. But foreign wines from Hungary and France found their way into the country, in time, to take the place of mead to a large extent, and as the forests became depleted and uprooted, and Poland itself underwent a basic change in administration on account of its subjection and division, bee hunting itself, in its original form, dwindled and gradually disappeared.

In its stead came the keeping of bees in log hives, which were similar to the forest logs, but kept now in apiaries at the home of the beekeeper instead of being spread promiscuously over the forest. These were, of course, immovable-comb log hives.

It was at the time of Dzierzon, and

of the German beekeeper Baron Von Berlepsch that movable-comb hives came into being. Immediately the interest in beekeeping in Poland was aroused. The champions of this movement were Julianus Lubieniecki, Pfarrer Johann Dolinski, and University Professor Theophil Ciesielski. The last of these had invented a new so-called "Slav" beehive, which is yet used to a great extent in Galicia.

Let me remark that there are, besides, in common use, in Poland, the Warschauer (Warsaw) hive, and in more recent times the American type of Dadant hives, whose champion is L. Weber.

In Polish literature, the oldest bee book is that of Valentin Kacki, "Die Lehre von Bienenstande," published in 1614. The book is, for its time, excellent. Kacki was not satisfied, for instance, with the forest bee trees. He designed and built for himself, a beehive and assembled his bees in apiaries.

In the eighteenth century bee literature was lacking on account of the torn condition of the country, owing to wars and the later division of the country between Austria, Germany and Russia.

The nineteenth century, on the contrary, shows a lively interest in bee literature. Men like K. Klug, Witwicki (1829), Strumillo (1837), T. Sulzgnski (1842), P. E. Lesmiewski (1842), awakened beekeeping to new activity by their literary efforts. These were, in turn, followed by a number of writers, among whom J. Lubieniecki, J. Dolinowski, and T. Ciesielski wrote the best books.

The twentieth century has also brought forth many valuable books and shows that Polish bee literature has attained a high state of perfection; all the more, since three trade journals give writers the opportunity of disseminating information and answering questions on bees and beekeeping.



Winter view of L. Weber's apiary in Dadant hives. (Poland).

Only since 1918, when the chains of political slavery were broken and the light of freedom spread over Poland, could one think of such a close union. What has happened in this respect in hardly four years is wonderful. In spite of the Ukrainian uprising and in spite of the inroads of Russian bolshevism, the organization of beekeepers into a compact whole has been effected.

In lesser Poland (formerly Galicia), in greater Poland (formerly Prussian Poland), and in Russian Poland, local associations have been formed. These are united into three provincial associations, with headquarters at Lemberg, which has the largest number of locals, Posen and Warsaw. These three provincial associations in turn form the great central organization with headquarters at Warsaw. The number of colonies

at the last count was 660,000, in spite of the great losses of bees during the world war and the two later wars with the Ukraine and bolshevik Russia.

The Lemberg organization is developing most rapidly. Under its protectorate and support there was built a workshop for making wax presses and also the usual flat foundation presses.

This association has also organized a department for handling honey and wax and has in view a factory for the making of mead and other similar drinks having honey as a base.

At the next apicultural congress to be held at Marseilles the Lemberg association will send their own representative in the person of their secretary, Mr. L. Weber.

Lemberg, Poland.



Leonard Weber, well-known Polish beekeeper and editor of the Polish bee magazine.

"APIS AMERICANA"

By H. W. Sanders

THE late Dr. Bonney's last contribution to your columns, and the subsequent discussion in your editorial pages last month under the above caption, raise several extremely interesting questions on the subject of the races of bees, and incidentally reveal how little progress we have really made in bee breeding during the seventy years since Langstroth and his contemporaries began the work.

It cannot be denied that the Italian bee has gained the commendation of nearly all the recognized authorities, and that it has largely superseded other races. Yet, every beekeeper knows that, with half a chance, his apiary will degenerate into hybrids; that hybrid blood shows remarkable persistence and that it sometimes takes years to entirely eradicate a hybrid strain. Possibly one of the peculiarities of Italians

which we have been slow to realize is a lack of prepotency. Otherwise how can we explain the survival of black and hybrid blood so persistently in many regions?

The possibility of ever developing a bee to a point where it may be called "Apis Americana" and may scientifically take its place alongside the others, depends to a great extent on whether we can do with bees what has been done with many other kinds of stock. Horses and cattle have been varied largely in the past century, pigs still more, while various small animals and birds, such as dogs and domestic poultry, have been completely transformed in a comparatively short number of generations and—most important of all—the characteristics that have been thus acquired have been transmitted, where the strain is properly mated. Most of the writers of textbooks on

bees cite the above examples and draw the conclusion that the same work with bees will give us an insect capable of gathering more honey, of withstanding disease better, and of even possessing less desire to swarm.

How far is this conclusion justified?

The characteristics which we have succeeded in modifying in domestic animals have been nearly all those of form, or color, or size. From some primitive dog we have produced St. Bernards, mastiffs, terriers and pekinese. From some primitive cattle we have obtained Jerseys, Holsteins and Herefords, and from some wild pig we bred alike Chester Whites, Yorkshires and Durocs, and so on. We have never, however, succeeded in changing the instincts or habits of any of these creatures to any extent. The Pekinese has just the same desire to sniff at a fence post as the Airdale and the White Leghorn has just about the same personal tastes and fancies as a Rhode Island Red. In cattle, one of the dominant instincts is to remember the places where good pasture is to be found; the most highly-bred and specialized cow, in captivity, will remember the corn patch she broke into a couple days ago and will break the fence down again if you let her out. Why not try to breed a cow that will respect your neighbor's property?

The above question is just about as sensible, really, as asking why we cannot breed a bee that will not swarm. Swarming is just as deeply rooted an instinct as the cow's instinct to find the corn patch, and it persists through all changes in form or color.

If we are going to attempt to do with bees what has been done with other live stock, we must try to breed a larger bee, or a bee with a long tongue (which some claim to have done), or a bee with distinctive mark-



Two-hundred-year-old basswood stump occupied by a colony of bees.

ings or other distinctions of size or shape, and until we can control mating how is such a thing possible?

"Qualities of Hybrids are not fixed." I quote from your editorial, and here surely is the explanation: Suppose that instead of the careful selection that goes on in cattle breeding, that there were merely general matings of individuals by guesswork, would not the same results be apparent in cattle? The only instances where any progress could be possible in such circumstances would be where a man kept a herd, all of the same breed and gave them very good food and care, which is exactly the extent of the progress we have made with bees. Where Italians, or some other race are in a location where they can be kept pure, and given the best of care, they prosper; but their physical characteristics do not become modified and the original instincts of the insect are absolutely unchanged.

Perhaps it is because we deal with an insect that these things are so. Insects are a form of life which we understand very little. One of the outstanding characteristics of all insects is the wonderful fixity of their instincts.

Dr. Miller spent 50 years in breeding bees, and what can be learned from his experience? We know that after forty years of selection he had bees which he said were "hustlers to store," but after European foulbrood forced him to change his strain, he beat his own record within a very few seasons. One is tempted to wonder whether the record crops obtained in some of his later years were not due to exceptional skill on his part rather than to exceptional bees.

The foregoing may not appear very constructive, but we must recognize facts for the stubborn things they are, and ask: "Have we made any real progress in breeding better bees?"

California.

HOW HUBAM CLOVER INCREASED MY HONEY CROP

By Edw. A. Winkler

A LONG in the year 1920. I received a free sample of Hubam clover seed from the Iowa station, and after harvesting several pounds of it that year, decided I would plant quite an acreage in 1921, so I bought some more seed from Henry Fields, and after I was through planting I found I had 43 acres. I had limed the ground well and, although I was late in planting it, I harvested a fine lot of seed.

I paid \$30 an acre for the land I grew my Hubam on and \$10 per pound for the seed, and hired nearly all the work done, as I am no farmer but a beekeeper with about 500 colonies. When I planted my clover I thought I was going to grow it as a side line with my bees, but when cultivation time came, and then hand weeding became necessary with the managing of many boys, I soon found that my bees were the side line and that I was working overtime to prevent a total loss in both lines.

Well, when I had my seed all in bags and all expenses added up I found that my total investment was over \$3,000, not figuring my own time. I was not discouraged, for I had over 2,700 gallons of honey and I believe the finest lot of Hubam seed in the state.

I sold about 1,000 pounds of my seed, but not many farmers were buying seed at \$2 per pound so, long before the seed selling season opened I decided I was through selling Hubam seed. I had decided on a plan where I could invest my seed better than the money it would bring. I had harvested not a pound of honey from my 43 acres, but was sure that if the atmospheric conditions were right, Hubam would yield honey, and lots of it, for I had read of others harvesting Hubam honey.

I drew up contracts and advertised

once in the local paper that I would furnish the seed, one-half the limestone, test the soil (in which I used the Potassium Cyanide test), furnish bees to pollinate the bloom and under my instructions the farmer was to prepare the soil, plant the seed broadcast, 10 pounds per acre, and hull the seed crop, the seed to be divided equally between us. I also planted some in all kinds of grain. Inside of three weeks my seed was all spoken for.

In this way I had 438 acres planted by farmers, from 10 acres up to 70 acres each.

Nearly all the fields planted in grain early in the spring had the Hubam just as high as the grain when the grain was cut. Those straw piles make mighty good feeding, for the stock eats it readily, while the grain yields were just as high as fields that had no Hubam in. Now, you know the chinch bug does not bother sweet clover. It's hard to find a chinch bug in a field of sweet clover, and I believe that Hubam in grain fields will, to a great extent, eliminate this pest.

We are cutting Hubam here now that was seeded in winter wheat, oats, spring wheat and winter rye.

All of those stands in grain were planted 5 pounds per acre and will yield from 5 to 6 bushels of seed per acre, while the fields of Hubam planted alone will run from 8 to 10 bushels of seed per acre. One field planted in oats will average at least 6 bushels per acre.

The spring started in so wet that farmers could not plant until almost the first of May, and then after planting it refused to rain any more.

The bees started to work on alsike about June 5, and by July 4 I had 800 gallons of fine clover honey in cans. Wild biennial followed in the heels of alsike and before that was through

my Hubam was white with bloom, and I never saw bees carry honey so fast as they did all through August, which is usually a droughty month here, and was with two of my out-yards this year that couldn't reach the Hubam fields.

We had a frost September 26 and today, the 28th, although the fields are ripe with seed and cutting is progressing rapidly, there is an underbloom down in the Hubam that the bees are working heavily on.

I am usually about to pack my bees for winter by this time, but the supers are still on the hives and bees working just like in July, and if I shake the bees off the unsealed combs the honey splashes out like water, so I must leave the supers on until the bees stop working, even if it is Christmas.

I extracted six times at all yards where Hubam was growing, and there will still be a clean-up. Many of my hives have already produced 400 pounds each and some of those hives have over 50 pounds on now, and it seems that they will keep on working until it gets good and cold, for the Hubam fields that were cut over two weeks ago are beginning to get whitish again, and with a late fall like we had last year—O, shucks, why be so hoggish? Hasn't the good Lord been ever so generous this year, and anyhow as soon as the bundles are hulled the farmers are going to fall plow it for corn or disc it up good and put in their winter grain.

We have organized the Will County Hubam Seed Producers' Association. Altogether, we have approximately 1,000 acres. The object of this association is to sell at a uniform price, clean, certified, scarified Hubam seed.

I will not stop until Hubam is growing on nearly every farm in Will County. I don't know how much seed I will sell, but I know I will not sell all of it, for I am going to contract most of my seed out again next year in small grain, and Will County will flow with honey from May till October, and when I look at the hundreds of cases of fine extracted honey piled up 7 cases high in long tiers and in every available nook and corner until it is almost impossible to take stock, I feel that it is the best investment I can make.

Hail to Hubam clover, for it is more than a "godsend," as our sage, A. I. Root, wrote: "In time, when the seed is more plentiful, we will see great fields of it plowed under, but the right time to fall plow Hubam under is when the stocks are full of green seeds just as the white bloom is blasting, and that will be another 'godsend' to the beekeeper."

With fields of Hubam clover all about us we get no amber fall honeys; although there is a slight blend, the honey is very light and Hubam honey is decidedly different than biennial white sweet clover honey, which has a greenish color. Hubam is white to light amber and tastes very much like white clover or alsike.

BEESWAX FROM CAPPINGS

By L. C. Dadant

THE amount of beeswax to be secured from a certain amount of extracted honey is of interest to many beekeepers. So many conditions enter that it is difficult to estimate how much beeswax can be secured. If the cappings are cut deeply there will, of course, be a larger amount of beeswax than when they are shaved thin. Then, too, if the combs are well filled, so that no honey is extracted unless uncapped, there is a still larger amount of wax in proportion to the amount of honey. On the average, 100 pounds of honey will yield one pound of beeswax net.

Loss

Other beekeepers melt the wax, using no other method of cleaning than the separating can commonly sold and furnished with capping melters. A large part of such beeswax has considerable honey in it and, when remelted, will show a heavy loss. At the Dadant factory, a few days ago, a shipment of some 1,500 pounds of beeswax was received from an extensive beekeeper. The cases in which the wax was placed showed signs of leaking honey. Because of this, the shipment was rendered by itself, to get an exact report on the actual amount of beeswax. We were surprised to see the loss there was in the shipment. The net weight of the beeswax when received was 1188½ pounds. The net weight of it, after being rendered, was 906½ pounds. We took extra pains with the shipment and ran the refuse from the melting through our process again so as to get the last ounce of wax. A loss of 275 pounds on a shipment weighing 1188½ pounds is entirely too much, especially as this must have been nearly all honey. Figuring this honey at 10c per pound, it would net the beekeeper \$27.50. Besides this, the cost of one extra rendering is 1c to 3c per pound, for the net amount of wax secured. This would, therefore bring the total loss up to approximately \$50 on this one shipment.

The Cappings Melter

It has always been our contention that a capping melter is not as efficient, when uncapping, as the old style uncapping can. In our own yards we have practiced for many years using large sized capping cans, allowing the cappings to drain thoroughly. After they are thoroughly drained, we pass the cappings through a capping melter and remove what is left of the honey. In this way, only a small percentage of the honey is run through the melter, and there is, therefore, that much less honey injured. Although some capping melters melt cappings with but very little injury, there is a slight tinge or discoloration if the operator is not careful.

Foulbrood

The practice of shipping beeswax, with honey in it, is as dangerous a proposition as shipping old combs with honey in them. No one knows, not even the beekeeper himself, whether there are germs of foulbrood in such honey, and a beeswax shipment which leaks honey will spread contagion. We want to urge, therefore, that every beekeeper take great pains to have his beeswax free from honey before shipping. The amount of honey in the wax may seem insignificant but, as honey weighs 12 pounds to the gallon, it is at least 50 per cent heavier than beeswax, and an apparently small quantity will cause a heavy shrinkage.

Hamilton, Ill.

CHANGES IN NECTAR SOURCES

The changes which occur in the nectar sources of a region are significant. In the Central West, agricultural practices, drainage, the removal of forests, and the introduction of cereal crops have greatly reduced the original areas of nectar-producing plants. At a beekeepers' meeting in central Illinois, one old-time beekeeper remarked that during the first ten years of his experience he secured excellent crops, but that during the second ten years his crops be-

came reduced over 50 per cent, and that lately he had not been able to obtain a surplus which paid him for keeping his bees. He laid it to the fact that in his district there was so much corn and wheat grown that the acreages of clover were greatly reduced. Excessive drainage also had reduced the fall flowers.

However, it is encouraging to note that where clover, such as alsike and sweet clover, are being introduced in the crop rotation that a great improvement in the honey yield becomes apparent at once. Beekeepers can do no greater work than help spread the gospel of clover rotation to include these valuable plants in their vicinity.—G. H. C.

CAN WE ELIMINATE DARK HONEY?

By Samuel Hagerman

It is a well known fact that dark honey is a bad proposition for the owner of an apiary as well as for the merchant who endeavors to dispose of it. Now the writer does not claim that it would be a better proposition to produce no honey at all than to produce dark honey—far from that—but what he is endeavoring to produce in the minds of apiary owners is the idea that it is practically unnecessary to produce dark honey. There are many who will question that statement. Dark honey is gathered from buckwheat and numerous wild flowers, and the number of them is legion. Also, we know that the flowers from which the bees gather pure white honey are very scarce during the fall of the year, when the flora of dark honey is obtained. Now follow me closely: About one year ago last June, somewhere about the fifth, we planted a field of corn and along with the corn, as an experiment, we planted Hubam clover in the same row. The corn was harvested in due season, Hubam clover and all. About ten days after the harvest, the clover sent out new shoots and began to bloom again, and continued to do so until the ground was frozen. This plant provides a source of pure white honey of the finest quality. Why, then, should we be satisfied with an inferior product? This year we again planted Hubam clover for experimental purposes—it being drilled in with oats—and the results were very satisfactory. After the oats were harvested it was not long before the clover had sent out new shoots to replace those damaged by the binder. Within a short time these shoots were out in bloom and the bees were gathering honey. Today, October 23, 1922, the writer had occasion to stroll across a section of this oat stubble that had been seeded to Hubam clover and found the plants still green; even after we had experienced a decline of the mercury to a point 12 below freezing, the little white blossoms were not injured:

Now, dear reader, does it not become apparent that if we plant a good sized plot of Hubam clover somewhere near the apiary so the little workers are not obliged to make long



Sweet clover in shock.

excursions to obtain nectar, that they will not seriously consider the dark product?

Bees are very efficient and do not desire long excursions, and if they are not obliged to make them they will not do so. A few days invested in planting a plot of Hubam clover about the tenth of May will undoubtedly increase the value of the season's flow of honey by at least 30 per cent. Can we eliminate dark honey? Well think it over, it is worth while.

Michigan.

(How will this work where the crop is nearly all buckwheat, as in some parts of New York? It is evident that in some localities, the mellilot will be preferred, if there is enough of it, though the common black bees never appear to show much discretion in the selection of the bloom, for we have seen them gather fine white clover honey and honey-dew at the same time into the same combs.—Editor.)

AN INSTANCE OF PECULIAR BEHAVIOR

By Jes Dalton

I often wonder how far we could go if we were able and had the time to follow up the various actions of our bees. Last year, after using a large triple-compartment hive for cell building (American Bee Journal, December, 1921, page 493), I decided to fit out a hive for shipping along those lines. Using the equipment at hand, I took an 8-frame hive and nailed a 4-frame mating box to each side, facing the entrance of the latter in an opposite direction from the entrance of the former. I then bored a hole through the sides of both where they were nailed and fitted an excluder zinc over it. My plan was to stock up the center with a strong colony, and the side boxes with brood and give cells; mate queens there, take those queens for packages, and get bees and brood from the strong center colony. I figured that if 50 per cent of them were a success, I would have a world beater for a shipping hive here in the South.

But I will confess it was a dismal failure. I tried all season under all conditions and could not get one in four to mate successfully. Sometimes the bees would tear down the cells, but if they did not do this they would surely kill the virgin. I abandoned the scheme, but failed to transfer the colonies out of the standard hives at the center. This spring there were several of these setting around with the 4-frame boxes at the side, empty but connected by the hole and excluder with the center colonies.

In cleaning up burr and brace combs these little boxes became handy to store the comb in to get it cleaned out. I had missed putting combs in some colonies and the volunteer combs were also put in these boxes, sometimes with brood, and quite a mess of scraps and adhering bees. I gave the boxes no further attention until, long afterwards, I noticed bees diligently working in and out of some of the entrances. I looked in and out

of three that I had stored these messes in, two had raised and had good looking laying queens.

Now, why was it, when I had tried for several months, being careful in all operations, that I never succeeded in mating one out of four, when, pursuing the most slipshod methods, the bees, left alone, mated two out of three queens. I do not know, but I venture to say that when we solve all these little problems we will be lots further along with our business.

Louisiana.

CLEARING A HONEY HOUSE

By John Protheroe

In reading Bertrand's "Conduite du Rucher," I came across the description of a method of clearing bees out of a honey house which seems excellent. The description, however, is too vague to enable one to see exactly how this window escape is designed. Has any reader of the American Bee Journal seen one in use? The key seems to be "the ingenious arrangement of panes of glass." Perhaps someone can describe it more fully.

"To expell the bees who have escaped into the interior of the honey house one has recourse to an ingenious arrangement of panes of glass, invented by Mr. Theiler, of Zoug. Below the window pane there is left a space of from 10 to 15 millimeters for the passage of the bees. Opposite this opening and outside of it is an arrangement of six panes of glass from 100 to 120 millimeters in height, held at different angles by strips of wood. Bees which fly from the interior against the window end by escaping by the opening at the bottom, but those from outside, deceived by the arrangement of the panes, do not succeed in entering."

But why is this opening at the bottom? Bees settling on a pane of glass invariably walk upwards toward the top. As the opening and the arrangement of inclined panes of glass extend for the full width of the window, it looks as if it would be a very quick and efficient way of getting rid of the bees.

Virginia.

(I visited twice at Mr. Bertrand's, 14 years apart, but did not notice the arrangement in question. I also visited Mr. Theiler, the inventor of this escape. I did not notice it there, either. I believe that, although it was probably a very good escape, it was discontinued because there was too much glass and too many chances for it to be broken.

On the other hand, I had occasion, at dozens of different places, to suggest our escape for the bee house windows, just a long window screen, projecting 8 or 10 inches above the window on the outside and just free enough at the top for a worker to pass out between it and the wall. When the bee returns, she always looks for a chance to pass through the screen below the upper edge of the window frame, for that is where the odor of honey calls them. Wherever I described it, it was gladly welcomed as

a cheap and practical escape.—Editor).

SETTLING SWARMS WITH A SPRAYER

-- By Stephen J. Hermeling

The fellows who run their bees for maximum production deprecate swarming. However, ever since I was 12 years of age, I have enjoyed the excitement of a swarm. In practice, of course, I have always divided and kept swarming in check. This season I introduced the Modified Dadant hives, filling them with swarms from my best colonies.

I filled the Modified Dadant hives with nice fresh foundation and waited for my swarms. Sixteen swarms all settled on my loganberries, not one on any of the tall trees which are all about the apiary.

This is what I did: I have a \$5 spray pump. It is a simple cylinder 30 inches long and 2 inches in diameter. It has a piston which is worked with the left hand. The other end has a piece of hose attached which is put into a bucket of water. With it I can throw a stream of water as high as any of the trees, and when it has gone as high as it is forced the stream breaks into a fine shower. Whenever a swarm started cut I waited until they began to concentrate, then I worked my spray pump and made it rain, especially above the queen. In this way I compelled them to keep down low and alight practically where I wanted them.

It was wonderful. I believe I can drive a swarm with this little pump wherever I wish it to go. By working it hard I several times drove them back into the hives. In this way I filled all of my Modified Dadant hives with large, fine swarms, put them on the stands of the parent hives, and the result has surprised me.

Washington.

MAKING INCREASE

A Question and Its Answer

By Morley Pettit

Question: I have about 320 colonies and am thinking of buying 300 colonies from the South. Do you think they would come through all right in April? Can you advise me of any better way to increase?

Answer: If you want my advice about increasing from 320 to 620, it would be, DON'T. I would not be afraid to bet you are not getting what you should from your present number. Let me ask you two questions. Have you an average of three or four 10-L extracting supers per colony for what you have? If not, you are not prepared to take advantage of a good crop next year if one comes. Do you rear all your own queens and see that each colony has a good one before fall comes on? If not, you are not prepared to make the best use of what equipment you have. Until you can answer these two questions in the affirmative, you

can improve your financial returns quite as rapidly by working in that direction as by increasing the number of your colonies.

When we make an increase of one hundred colonies we are not satisfied until we have bought at least four hundred 10-L supers and one hundred shallow supers. To nail these, put up, wire and foundation the frames, and pay for them is some chore, yet we do not get the best results without that many supers. This is no preaching, but only a report of what has been drilled into us by years of experience. For instance, last year we had all our supers filled and thought we had a pretty good supply of them, but this year, with two hundred more supers on the hives and about the same number of colonies and similar season, again had them all pretty well filled. Next year we will not have much increase, but will have more than two hundred extra supers, and perhaps they will fill them, too.

For increase we build up our queen-rearing nuclei into colonies towards the end of the season and like the method much better than buying bees. We can do it at our own convenience and without much expense, then they are in our own type of hives and combs.

Ontario.

MORE ABOUT CHINESE BEES

By E. J. Blandford

The Chinese consider 6 to 10 lbs. of surplus honey a good catch. They are very careless about their bees; they let them come and go according to the "good luck" of the family. You will find them in dirty old tubs, under the eaves of the houses, fixed up over a pigsty, in a hole in the wall, here, there and everywhere. The last colony I purchased for 30 cents (gold), I took out of the kitchen cupboard, bees on one side of the shelf and basins, etc., on the other. Next day I was taken to see a colony in an old box under the bed, but they were unwilling to sell, thinking that to disturb the bees would interfere with the "luck" of the place. The bees had been under the family bed for seven years and the neighbors came round to protest when I thought of moving them.

It is not at all unusual to find two queens in one tub, they seem to work on merrily together. Chinese bees are usually quiet. I rarely have to smoke, and can lift them about in handfuls.

Wucheng Ki, China.

THE USE OF SILICATE OF SODA IN HOME-MADE PASTE

By Ivan W. Parks

The question of how to make a paste that will fasten labels securely to tin is one in which considerable interest has been manifested of late.

In Farmers' Bulletin, No. 516, entitled The Production of Maple syrup

and Sugar (p. 44), the following formula is given:

Silicate of soda, one-half ounce.

Corn starch, one ounce.

Cold water, one and one-half pints.

Add the starch and silicate to the water and stir until the whole is smooth, then place the vessel in another one containing a little water, and heat until the starch is gelatinized. This paste should be made often, as it soon loses its sticking properties.

I have used this formula for several years, and it has been very effective for paper labels on tin cans and glass jars. The results are especially pleasing if the labels are pasted on shortly after filling with heated honey and before the cans are cold.

Furthermore, the addition of a small amount of silicate of soda (common water glass) greatly improves the adhesive quality of ordinary flour paste. On one occasion, I was using flour paste for labels on glass with success, but on tin this paste was not so successful. The tin was comparatively clean. I added a small amount of silicate of soda to the flour paste and behold, the paste was a complete success on tin.

If the use of silicate of soda in home-made paste is new, and I do not now recall the mention of its use in the bee journals, I trust the above formulas may prove of interest and of some value.

Michigan.

HONEY-NUT BUTTER

By S. J. Manchester

I was somewhat interested in the article appearing in the American Bee Journal for October in regard to "Honey-nut Butter." I was amused to find this combination of peanut butter and honey heralded as something new, as I thought I invented that combination years ago.

We use "Honey-nut Butter" at home as a sandwich filler. There is no mystery about its formula. Any proportion of peanut butter and honey will answer, depending largely on the maker's fondness for either or both ingredients. We use fifty-fifty and find it satisfactory.

No matter what proportions are used, the mixture will get rather stiff in consistency, so that it is difficult to spread easily. I have made it with 1 of honey to 3 of peanut butter, and 3 of honey to 1 of peanut butter. It doesn't seem to make any difference; it gets stiff. This is due, I think, to the crystallizing of the honey after mixing and may be retarded somewhat by heating both ingredients over a water bath at the time of making. In any case, the "honey-nut butter" can always be softened by warming. It is a delicious sandwich filler, but everyone does not like it. It seems to depend primarily on a person's taste for peanut butter.

I'd like to tell you how I came by it. We have a confection in Canada known as "Honey Boy Kisses." Peanut butter contributes a small center

in a piece of molasses chewing candy. I thought that if this tasted so good it would be better with honey, and it is.

Ontario.

BEE KEEPERS BY THE WAY

Manitoba's Apiarist

The Canadians are wide awake and are doing everything to stimulate better agriculture. In the past the prairie provinces have given attention principally to the growing of small grain on a large scale. Of late there is much interest in the small specialties, such as bees, garden, poultry, etc.

L. T. Floyd was raised on a farm down in New Brunswick, where it requires a hardy race to wrest a living from the reluctant soil. Floyd was a successful dairyman who also cultivated strawberries and bees. The Commissioner of Agriculture needed a man who knew both beekeeping and small fruit growing, to serve with the department, and picked on Floyd. He engaged for a short time at first, with the full intention of returning to the farm. Every time that he prepared to return, additional inducements were offered to keep him with the department. Finally Manitoba took him to the west, where he is giving similar service. However, he has given all his time to the beekeepers for a long time past. Floyd is likely to tell you that Manitoba is the best country in the world, that it has the best people and the finest honey, and will come near proving it. He don't brag about the mild winters up there, however.



Manitoba's Provincial Apiarist.



Bee house in summer, with sash removed.

WINTERING IN ATTIC AND CONSERVATORY

By Charles F. Adams

It has long been thought that a warm attic was a bad place to winter bees, yet after 15 years of attic wintering, without the loss of a single colony, as far as I can remember, I am convinced that a warm, dry attic is one of the best places for wintering. The usual objections raised, that it tempts them to flight when the weather is too cold, that it promotes breeding in winter, are not borne out by my experience.

My attic bees remain quiet, often they are not clustered; they consume a minimum of stores, and come through with undiminished vitality. At all times the hives are dry and sweet, very few bees die, there are no flights when the weather is too cold and whenever the weather permits of a cleansing flight, the bees seem to start out warm and vigorous and are not chilled and lost in the snow.

Although I have used glass hives exclusively and have observed fairly closely, I do not feel that I yet know the optimum temperature for indoor wintering. I am confident that it is considerably higher than is most commonly given for cellars in which the air is not so dry. It seems to me better that the thermometer should not fall below 55 degrees and I never have observed any bad results from a temperature much higher than that. My experience confirms Phillips' observation that breeding requires a high temperature from clustered bees and that it is cold—not heat—that causes bees to cluster and therefore to breed.

The attic should be warm, as a cold attic will act like a refrigerator and opportunities for cleansing flights will be lost, to say nothing of the effect of the long continued cold. Of course

the bees must have an exit for flight and an exposure toward the south or east for the sunshine, and to avoid the northwest winter winds. The bad exposures of the four colony winter cases would be a fatal objection to them in our locality.

Wintering in Conservatory

In my present location, for ten years, I have used the conservatory plan of wintering bees back of glazed sash and conclude, that, in the climate of central Massachusetts, this plan is worthy or more general adoption.

My bee shed on the south side of a granary is 14 feet long and 3 feet

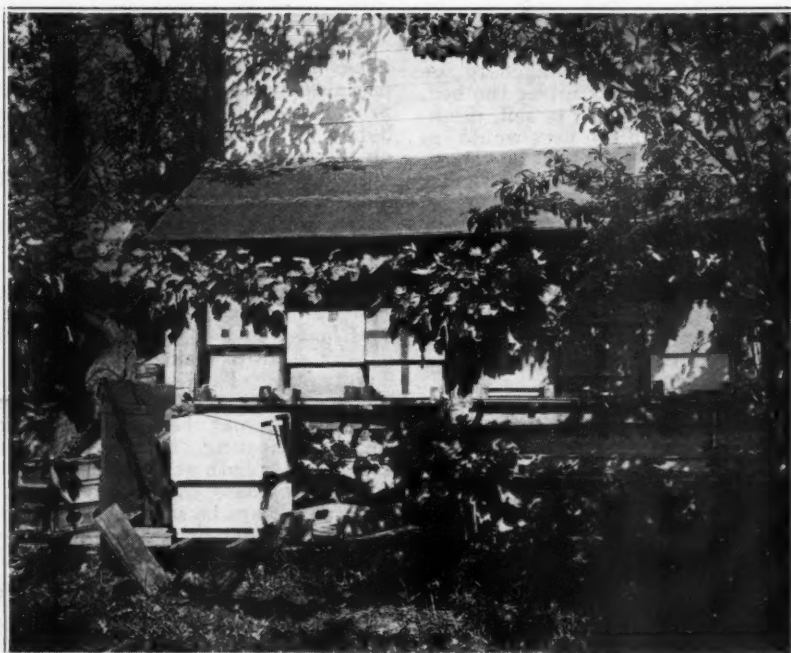
wide, accommodating 8 hives. I also have a bee house 16x5 feet. Each of these has a continuous glass front on the south side. The house accommodates 9 hives, in the lower row, and another row, or even two, could be wintered on top of these.

In winter the hives are set back about 6 inches behind the sash, each hive with a separate runway, which is covered by wire netting. Winter entrances are contracted by blocks to 12 inches by three-eighths of an inch, and the outer entrance under the sash consists of six three-fourths inch holes to each hive. During cold weather 4 of these holes are stopped by twists of paper. By this plan the outer entrance is small and so protects from wind and the hive entrance is fairly large, so as to keep the hive dry.

There is a ventilator, equaling one square inch per colony, at the top of the end of the bee shed and of the bee house. The opening is protected from sleet and ice by a slanting shelf placed above it and the opening has 4 thicknesses of burlap to prevent draft and keep out snow. There are indications that a larger ventilator might be desirable during April and May breeding, but I have not yet determined the exact size.

The effect of the glass front is to trap the sunshine so that the average temperature of the enclosed space is considerably above that outside, and my bees, although on the high land in central Massachusetts, winter in an average temperature something like that of Washington.

After a night of 7 below zero, when at midday it was 17 degrees outside, the temperature inside the bee shed in the shade was 55 degrees. As our coldest weather is clear weather, sun light is trapped when most needed. My bees seem to like to bask in the sun at the entrance of the hive. The



Adams' bee shed during honey flow.

colonies on the top of the lower row of hives, though in warmer air, do not fly, when without sunshine, nearly as soon as those which have sunned at the entrance.

Sealed covers seem to be best with indoor wintering. Ordinarily the hives are dry and sweet in spring, although with poor stores and a long shut-in period they sometimes get damp and foul. With a bee shed or a bee house one does not worry how the snow drifts or how the sleet freezes. There is at all times protection and sufficient ventilation.

If I were to build again I would make my shed wider at the eaves, so as amply to cover the hives in summer when they are pushed forward in order to make a space behind them for handling. The house, however, should not be too wide, because we wish to heat a small volume of air very warm. It would not do at all to put hives in a barn with windows in the sides of the barn without enclosing the bee room. The great space would act like a refrigerator and prove exactly what is not wanted.

The sashes should be removable from the outside and they are taken out from apple blossom to apple picking time.

My locality is a poor honey field. The soil is acid and the clover is neither abundant nor dependable. Yet my average crop for seven consecutive years, was 44 pounds of comb honey per colony, spring count. This is at least half more than my neighbors get from their refrigerator wintering.

Spencer, Mass.

(This excellent article deserves commendation, for it is good in every point.

The objections made at different times to keeping bees over winter in an attic referred to the keeping of them in confinement, as it is done in cellars. The bees then become restless on warm days. But when they are placed there permanently, with opportunities for flight on warm days, there is no doubt that the warm attic is an excellent location. The only difficulty is bringing them there in fall and removing them in spring, as at each removal some bees are likely to be lost. But the attic would be all right for an all season apiary, with the exception of the discomfort to the beekeeper of working at the bees in summer. The best location we ever found for a few hives of bees was a small hothouse, located between two high banks, and with a glass front facing south. Six hives kept in that hothouse gave better results than 20 hives kept outside, as they were exceedingly strong in spring and did not suffer from the changes of temperature in brood rearing.—Editor.)

ANCIENT BEEKEEPING

By Arthur W. Brady

The interesting letter of Mr. Baldensperger in your September issue tells how Ehmud, an Egyptian beekeeper, ascertained whether his bees were gathering honey. Ehmud kept

his hives in a boat on the Nile, and judged the results of their activities by watching the gradual settling of the boat in the water.

Ehmud was not the first to employ this method of measurement. Pliny, the elder, who wrote in the first century of the Christian Era, describes a like method used in Italy over 2100 years ago. Says Pliny:

"As touching their food and nourishment, I will tell you a wonderful and memorable thing upon mine own knowledge. There is a towne or Burgade called Hostilia, scituat upon the river Po, the inhabitants of this village, when they see that their bees' meat goeth low thereabout, and is like to faile, take me their hives with bees and al, and set them in certain boats or barges, and in the night row up the said river Po against the streame five miles forward. The morrow morning out go the bees to seeke food and reliefe. Now when they have met with meat, and fedde themselves, they returne againe to the vessels aforesaid, and thus they continue daily, although they change their place and haunt; until such time as their masters perceive that the hives bee full, by the settling of their boats low within the water with their weight, and then they returne home againe downe the streame, and discharge the hives of the honey within."

The quotation is from the 21st book of Pliny's Natural History, translated by Philemon Holland, and published at London in 1634.

Indiana.

A PACKAGED HONEY PRODUCT— PURITAN MAID MACAROONS

By John T. Bartlett

A bakery honey product which The Honey Shop, Home Public Market, Denver—a retail enterprise of the Colorado Honey Producers' Association—is handling, giving display where the customer is pretty apt to see it, is cocoanut honey macaroons. The macaroons are manufactured by a local concern, the Puritan Pie Co., and put up, a dozen of them, in an attractive cardboard box, which in turn is wrapped in waxed paper for keeping purposes.

The net weight of contents is "six ounces or over," and the package retails for 25 cents.

The word "Honey," in association with a food product, has advertising value. Biblical allusions to "milk and honey" are suggestive of a feeling toward these two products which the human race has had down the long line of centuries. "Honey" sounds well, and these makers of macaroons give the word equal prominence with "cocoanut" on the cover of the carton. On the bottom, there is the statement, "The macaroons contained in this package are made from pure honey, cocoanut, sugar, and the whites of eggs; they are guaranteed to conform to all state and federal pure food laws."

The carton used is a very attractive affair, blue with white borders.

The name applied to the macaroons is "Puritan Maid."

The "Honey Shop" is only one of the outlets of the Puritan Pie Co. for this packaged honey product. The writer can vouch, after trial, for the deliciousness of the product. The individual macaroons are much larger than those usually sold.

Honey Nougat is another product the "Honey Shop" is selling at this time.

Colorado.

LOW HONEY PRICES

By H. W. Sanders

As usual at this time of year (October), our California beekeepers are trying to sell their crops at a price that will enable them to stay in the bee business, and also, as usual, the honey buyers persist in looking at the matter from quite another viewpoint. Their question is "How is the market for honey in the large consuming centers?" Their offers seem very low to the beekeeper, and our local bee paper is filled with letters and suggestions.

In a territory which raises more honey than can be sold locally, the price will fall to a level at which export buyers will be attracted and, human nature being what it is, the buyer is always after the best bargain that he can drive. With honey at 8 and 9 cents, a beekeeper has to produce large and unfailing crops to build up a profitable business.

As usual, most of the suggestions are for "co-operation," either in pooling the supplies, packing the honey, or advertising it. The achievements of other California co-operators, such as the raisin and orange growers, are cited as a shining example of what co-operation can do, and the chief obstacle to success is the expensive experience through which the existing Association has gone. It was caught with a crop of honey on its hands in the great after-war deflation of prices and its members had to make good the losses. It is to be hoped that a California Association may ultimately be formed which will put on the American and foreign markets a product of uniformly excellent quality and pack, under its own brand and label.

In the meantime, however, it should be remembered that the price of honey in wholesale markets depends, in the last analysis, upon public demand, and that the proven way of stimulating public demand is to advertise. It is the housewife asking for honey at the grocery in New York and Chicago who will make the California buyers pay more here. These advertisements are going to be inserted by the American Honey Producers' League, so here is a boost for them and their work.

Individual beekeepers can do a good deal to keep prices up by holding on to their crop. There are always some of the smaller and weaker brethren who will insist in sacrificing their honey to the first bidder; but they will not last forever, and it is

the experience of many beekeepers that the price of honey is often best just before the next year's crop is ready for market.
California.

(If we are properly informed, the American Honey Producers' League does not have enough support for another intensive advertising campaign. The beekeepers at large have not yet learned the need of full and constant co-operation.—Editor.)

TAKING BEES FROM A CHIMNEY

By George Gilbert

Hiving bees from a chimney or other part of a nice home without damaging the house is often a problem for the beekeeper, since he will usually be appealed to. The value of a big swarm will tempt him. In addition, sometimes the bees will have been domiciled for a long time and hiving such a swarm often yields honey as well as a vigorous colony of bees.

I was asked this year to take bees from the chimney of a fireplace where they had been for almost two years. The chimney is of ornamental pressed brick with a flue surrounded by an air space. The bees had thus plenty of room inside the chimney. The first year the owners did not use the fireplace, fearing that the wax would melt and take fire inside.

I began operations at the beginning of the buckwheat flow. The pitch of the roof was found first and a hive bottom prepared to accommodate this pitch and still keep a hive in a level position. This was easily done by nailing legs to the front edge and attaching a strip of tin to them at the bottom. Another strip was also fastened to the back edge of the bottomboard. These strips were then nailed to the shingles, with the nail heads projecting sufficiently that they could be quickly pulled without damaging the roof. When complete, the hive stood with its entrance close to the flight hole that the bees used most, a narrow chink between the bricks where the mortar had fallen out.

A nice Italian queen and a frame of brood containing unsealed cells were slipped into the hive. I used a wire cone as a bee escape, which I tied and puttied over the flight hole. The top of the chimney was also closed. Then I went down to watch.

The returning bees formed a swirling black cloud over the chimney, and alighted on the wire cone. Those inside went forth to return later and join the angry, buzzing swarm. By dusk the hive had been investigated by some, but the bees were bent upon getting into their own waxy palace inside the chimney and refused to yield. They formed a cluster as big as a derby hat on the cone and finally began to snoop all over the top of the chimney. After a time I noticed that there seemed less of them in sight. I went up; found a tiny hole leading inside that I had overlooked. Bees were going in. I had lost half the swarm.

I plugged the hole with putty. Result of the first day's battle: a drawn contest.

Meanwhile the bees had been "zumm-ing" up and down inside the chimney, getting through from the air-space into the flue through chinks where the mortar was missing. We found a dozen, and then a score, of tiny cracks in the living room where the fireplace was, that let bees out. These were stopped in time, but it took over three days to get the last one bee-tight. The bees that worked out into the house flew outdoors as soon as given opportunity and did not act ugly. A bee inside usually goes for the light, instead of stinging.

The morning of Tuesday the swarm outside increased. So far it had been fine weather. All that day they went to the field, returning laden with honey and pollen to fight the cone. Their hum was angry. I found three places where bees could touch antennae with those inside, but could not pass. I plugged these little holes and also a place where some bees were getting into the chimney flue, where the screen covering the top had been displaced. Then, for the first time, I felt that the bees were shut out. They clustered on top of the chimney. I got a pint of them in a bunch and threw them at the hive entrance, but they swarmed out angrily. During that day a few tired bees had joined my Italians in the hive of their own accord.

On Wednesday the swarm outside was huge, as none of them were getting in. The weather continued fine. The humming indicated that the bees had not lost heart as yet. Night came with the chimney top a mass of bees. A few drifted into the hive at dusk.

On the morning of Thursday the bees went to the field from their cluster, loaded with honey and pollen, returned and hung on the cone in masses. The day was fine, but indications pointed to an evening shower. As night drew on, the bees ceased searching up and down for cracks and began to go on top of the chimney. The sky became overcast. At once the noise made by the bees changed. They began to run about, as when a queen is lost, acknowledging for the first time that they were in distress.

As the storm drew on, I went up and found about a gallon of bees massed on top of the chimney, silent, with wings drawn in. The brick that held the wire screen on top of the chimney was covered with bees which I shook off at the hive entrance, where they were met by the bees from within. I went down to get a smoker and a dipper and when I returned the bees had formed a procession from the top of the chimney across the shingles to the entrance of the new hive. This was an interesting sight to me and I thought my troubles were over, but suddenly the rain began to come and the marching column of hiving bees split half way down the chimney. Those below continued their homeward march, those above went back to cluster atop the chimney.

By standing on tiptoe on the top-most rung of the ladder I could reach the chimney and, using the dipper in one hand with the smoker clutched in the other, I dipped up bees and threw them at the hive, balancing on my toes the while. My veil whipped loose and I became aware that I was covered with bees made angry by rough handling. It was dark, for the lightning had ceased. I had smoker in one hand, the last dipper of bees in the other—then the first bee found my left eye, out of which I did not see thereafter for 48 hours. I cast the last of the bees into the hive front got the dipper and smoker in one hand and backed downward.

Next morning the bees went to the field eagerly, a very few hanging about the cone. As the bees within the chimney emerged from day to day most of them joined the swarm and soon the old home in the chimney was depopulated. The hive on the roof was built up like magic. The old queen in the chimney and her few remaining adherents were brimstoned, the new colony removed to my apiary, and the chimney chinked with fresh mortar to make sure that no other bees would set up housekeeping.

The principles of this scheme once in hand the beekeeper can vary the details to suit the conditions. Putty is important, as one can never tell how many little cracks will be found giving entrance to the bees after the main entrance is closed with the escape or the wire cone. Rubber soled shoes or moccasins, heavy felt slippers or wool socks should be worn to keep the roof from damage and also to give the beeman a firm footing in dangerous places.

New York.

THE SPREADING DOGBANE IS A GOOD HONEY PLANT

By W. J. SHEPPARD

In many places in the interior of British Columbia there are hundreds, perhaps it would be more correct to say thousands of acres of hitherto little known and appreciated wild flower, commonly called milkweed, which rivals the well-known fireweed in the quality of honey it is capable of producing. This is not a true milkweed, however, all of which are botanically known as *Asclepias*, but belongs to an entirely different family, the proper name being the spreading dogbane (*Apocynum androsaefolium*). The name "milkweed" is commonly applied to a good many plants that exude a milky sap when a leaf or branch is broken off, and the spreading dogbane is no exception.

Fireweed can only be depended on to yield nectar freely when it is growing on sufficiently moist land, but the spreading dogbane, on the other hand, usually produces quantities of honey in dry seasons, and in districts where there is not a large amount of precipitation. This plant seems to prefer poor soil and a dry climate. In the spring of 1921 large stretches of it were cut down by frost, from which

it did not recover that season, and it therefore yielded a short supply of honey. During the present season, as if to make up for lost time, there has been a very large yield of honey in some districts from this source. It remains in bloom for a long period and the flowers have a perceptibly strong and pleasant aroma. They are produced in clusters, white tinged with pink, and look like little bells. The plant is bushy, and usually grows about two feet in height. The seeds are formed in long pods which have the appearance of a miniature cluster of dwarf beans. When mature the pods burst open and expose the ripe seeds, which are covered with a white, silky down, very similar to the seeds of the fireweed. This enables them to be carried long distances by the wind, and so distributed over wide areas and ready to spring up in pastures new.

The honey from the spreading dogbane is water white, like the fireweed, and cannot be distinguished from it in point of color. It has, however, a superior flavor and, usually, more density.

British Columbia.

COLLEGE FUND APIARY

Establishes World's Record Honey Production From Three-Pound Packages of Bees

By Willis Crites

This project was established by Marjean Crites (age 11) and Judith Crites (age 8) at Amenla, N. Dak., in the spring of 1922, with their College Fund savings for the purposes of financing their higher education.

Five three-pound packages of bees were received from Louisiana June 5 and rapidly built up to five strong colonies, producing a total of 1582 pounds of comb honey during the first season.

The cut shows the two girls with their highest producing colony. They have named it Achievement colony, and its queen Achievement Girl. This colony produced 485 pounds of comb honey and is one of three world record productions made at Amenla this season.

Achievement Girl will be used next season as a breeding queen by Amenla Farms Apiary, the large beekeeping establishment owned by Carrie T. Chaffee, of Amenla, North Dakota, and managed by the father of the two Crites girls. Achievement Girl is valued at \$300.

North Dakota, known to the world for its broad expanses of spring wheat, is rapidly changing over from the one-crop system to that of diversified farming. Until the last four or five years the honeybee was practically unknown in North Dakota. The coming of large areas of sweet clover which provide the best bee pasture known, will soon make North Dakota a beekeeping state of first importance. Marjean and Judith Crites, aged respectively 11 and 8 years, bring recognition to North Dakota.



Hive filled by the bees owned by the Crites girls of Amenla, North Dakota.

THE HAIRY VETCH

By Alfred Carling

In the American Bee Journal for October, there appeared a very helpful article from the pen of Mr. W. J. Sheppard on the hairy vetch. Mr. Sheppard says hairy vetch is a hardy annual. Now the great power of survival under conditions that will eliminate most of its cousins, comes from its being a biennial and not an annual. I think there are about 100 species in the vetch family; but the only biennial, as far as I know is the hairy vetch (*Vicia villosa*). Mr. Sheppard's advice, to sow it in the fall, is not good for California conditions, as several species of sparrows, that breed as far north as the Arctic Ocean, winter here. They generally come with the first rains in the fall and stay till spring. They pick up the legumes as soon as the first leaves appear.

Thirty years ago a farmer planted a packet of hairy vetch (*Vicia villosa*). They prospered well, but the farmer did not pay much attention to them. The place changed hands. The next man on the place tried to destroy them, but some seeds had managed to get under a cross fence, among the barley grass. There they made a precarious existence a few years but finally got out to the roadside. There we have watched them year after year, wondering if they would be able to hold out against the "Conquistadores" that made the natives of the floral pageant furl their waving banners and disappear one after another. But when the grasses had turned yellow the cheerful blue of the vetch would still be waving above the dry bronco and needle grasses, waving defiance to the sun-baked ground as it defies the frozen meadows of the far away northland.

The summer of 1921 was rather trying. Rainfall below normal,

summer heat came early, bronco and needle unusually vigorous. It gave us a thrill of delight when in the fierce August sunshine among a tangle of two feet high needle and bronco grass we found our old friends waving their beautiful blue banners as cheerfully as ever over the sun-baked ground. Like the bird Phoenix, rising from his own ashes, or the fly Pyrausta, reveling in the furnace heat,

"So in the fire, in burning furnace, springs,
The fly Pyrausta with flaming wings."

The hairy vetch grows in northern Europe close to the line of the perpetual snow. Indeed it is grown in the north of Sweden where the midnight sun only thaws the ground a short distance in depth. And still during that short Arctic summer it will produce crops that would make a California alfalfa grower look up with envy and surprise.

Templeton, Calif.

Some Facts About the Vetch

The above letter caused us to investigate the authorities on the subject of vetch.

Gray's Botany, Bonnier's Flore and Bailey's Standard Encyclopedia of Horticulture report *Vicia villosa*, or hairy vetch, as both annual and biennial. The last mentioned authority calls it also "perennial?"

Bonnier, in his "Flore de France, Suisse & Belgique," lists 87 different varieties of vetch and gives 27 engravings in color, of different varieties. He gives as perennial nine varieties, as follows: *Vicia sepium*, *V. dumetorum*, *V. pyrenaica*, *V. pisiformis*, *V. argentea*, *V. onobrychoides*, *V. cassubica*, *V. silvatica* and *V. cracca*. Besides *Vicia villosa*, he mentions also *V. unguiculata* as a biennial or annual.

Bonnier indicates the following as honey-producing vetches: *Vicia cracca* L. (tufted vetch); *Vicia sativa* L. (tare); *Vicia tenuifolia* Roth, and *Vicia villosa* Roth. He also states that there are 188 species of *Vicia*, in the most diverse countries of the northern hemisphere and in South America.—Editor.

THE MILLER MEMORIAL LIBRARY

Having been informed indirectly that Mr. Arthur C. Miller of Providence, was donating his bee library to the Miller Memorial, we wrote him to ascertain the facts, and received the following answer from him. This is a princely gift, for Mr. A. C. Miller's library contains a large number of valuable bee books. It is to be hoped that others will follow.

Dr. Miller's private library, which was purchased by the American Bee Journal at his death, will also go to the Memorial Library, as a donation from the latter publication. Some 200 letters have been addressed to publishers and authors of bee books and magazines soliciting donations of their works, as complete as possible.

The gift of Mr. A. C. Miller to the Memorial of his namesake shows a wonderful spirit, for this library con-

tains many rare volumes. There are very few people who would thus turn over the collection of a life time without any chances or desire of personal gain.

"Yes, I have donated my entire library of bee books and magazines to the Dr. C. C. Miller Memorial Library and have already sent to Prof. Wilson, by express, over 100 of the most valuable ones, most all antiques. I am now finishing packing several hundred volumes of bound magazines, some old and rare pamphlets and sundry other material which I gathered as worth while. The several boxes of this latter lot will go forward by freight within a few days.

"I thought the gifts would be more useful if given now while I am alive, and when it might stimulate other gifts, than to keep it till I was dead and then have it forwarded.

"The latter lot of books contains nearly complete sets of American Bee Journal and Gleanings, and I believe a complete set of the Review.

"I hope to be able to cut loose from bank work within a year and then I hope to really enjoy life."

"Arthur C. Miller."

COMMERCE REPORTS—GERMAN ARTIFICIAL HONEY

The U. S. "Commerce Reports" for October 16, state that there is an increase in sugar consumption in Germany. It also gives some statements which we reproduce below, concerning the "expansion of artificial honey industry" in that country. We already knew that there was an export of strongly flavored dark honey from the Landes of France to Germany for the manufacture of artificial honey, as reported on page 233 of July, 1915 (A. B. J.).

In that production of artificial honey which we understand to be a preparation of liquid sweets, similar to the "Karo" of American commerce, there is an evidence of the lack of distribution of the crop of real honey, which causes a demand for sweets of lower quality.

Expansion of Artificial Honey Industry

"Artificial honey is made from refined sugar, either cane or beet, and contains about 80 per cent sugar, the rest being water and honey flavor artificially conferred. Pre-war peak production was reached in 1905, the industry declining by 1913 to a point where the factories were working only at about 25 per cent capacity. The shortage of meats and fats during the war stimulated the industry, which became very prosperous until Government control of sugar limited the amount of raw material allocated to the honey industry. However, despite all difficulties, post-war production exceeded the pre-war from 300 per cent to 400 per cent. At present the factory operations are embarrassed through lack of sugar and are unable to supply more than a fraction of the demand for artificial honey. There are from 40 to 50 large factories with about 150 smaller "cook-

eries," so called. The annual production of honey is about 50,000 tons, which means a consumption of about 40,000 tons of refined sugar. Assuming that the production of sugar in the coming campaign will exceed that of last year by 250,000 tons, which is doubtful, the entire outturn will not surpass the actual consumptive needs of the country. Even if the highest hopes are anticipated and a crop of 1,550,000 tons is realized, the country will still be 1,000,000 tons short of the average pre-war production."

AUSTRIANS LIKE U. S. HONEY

In 1920 Republic Imported 3,536,000
Pounds; 95,000 From America

The question of American beekeepers selling their honey in Austria would seem to depend largely on whether it is possible for them to deliver it at a price within reach of Austrian dealers, considering the depreciation of Austrian currency, according to a recent statement by Edward G. Montgomery, chief of the foodstuffs division of the United States Department of Commerce. Honey is very popular in Austria, he adds, and the country cannot produce enough to supply the demand. Artificial honey factories have recently been established in Vienna, but the people greatly prefer the natural article, he continues.

"There is no import duty on honey in this country, and it will undoubtedly be possible for American concerns to do a good business here, provided they are able to meet requirements as to quality and price," says Mr. Montgomery. "It should be noted that in addition to its importance as a consumer, Vienna does a large business as an intermediate station in trade with the secession states and the Balkans. Before the war Vienna was a central point for the honey and wax trade for the whole of Austria-Hungary. Large quantities of the finest strained honey from Hungary, considered a special delicacy, were purchased, besides smaller lots from east Galicia. The Galician honey is not considered so good, and is used more in cooking.

"Before the war Austria-Hungary stood third among European countries as a honey-producing country, only Germany and Spain ranking higher. The United States sent large quantities of honey and wax to Europe each year, but the American product is not considered of so fine flavor and high grade as the Hungarian.

"Imports of honey in the Republic of Austria in 1920 amounted to 3,536,000 pounds, of which 3,312,000 pounds came from Czechoslovakia, 32,000 pounds from Germany, 49,000 from Italy, 95,000 from the United States and 26,000 from Austria. The raw wax imported in that year was 42,000 pounds, Germany supplying 19,000, Italy 8,000, Switzerland 5,000, Egypt 2,000 and other parts of

Africa 6,000. There were about 9,000 pounds of prepared wax imported, of which 3,000 pounds came from Germany and 5,000 from Czechoslovakia. Exports in 1920 were: Honey, 90,000 pounds, 68,000 going to Poland and 22,000 to Czechoslovakia; raw wax, 14,000, of which Jugo-Slavia took 4,000. Rumania 2,000 and Hungary 8,000.

"A study of the situation leads to the conclusion that Vienna will, within a relatively short time, resume its former importance as a trade center for honey and wax, although the merchants have to meet new difficulties, chief of which is the variation in the rate of foreign exchange."

BEEES AND HONEY IN THE BIBLE

By S. H. Sabine

Not only does the Bible mention bees and honey no less than 30 times, but it also speaks of a "swarm of bees." So bees evidently had the habit of swarming way back there 5,000 years ago. That thought should be comforting to some of our friends who are troubled considerably with the swarming problem.

Solomon evidently enjoyed honey, for he mentions it in six different places, and in three places advised his son to "eat honey." I believe he also knew something of both comb and extracted honey, for he speaks of eating his honey with the comb, and in Proverbs 24:13 he said: "My son, eat thou honey, because it is good; and the honey comb, which is sweet to thy taste."

Also in Proverbs 16:24, Solomon said, "Pleasant words are as an honey comb, sweet to the soul and health to the bones." He appreciated the fact that honey is not only palatable, but healthful.

In Psalms 19:10, David mentions the judgments of the Lord as "being sweeter than honey and the honey comb."

Samson killed a lion and when he passed that way some time later he found a swarm of bees had taken possession of the carcass and had built combs and stored honey in them. He removed some of the honey, took it to his father and mother and made a riddle about the strength of a lion and the sweetness of honey. This is found in Judges 14: 8-18.

1st Samuel 14:25-29 describes a wood where honey was so plentiful that there were honey combs lying on the ground. This honey seemed to have considerable virtue in it, for it is recorded that by tasting of it Jonathan "had his eyes enlightened" so that he had a better understanding of the needs of the people than his father had.

Isaiah, looking forward to Jesus as a child, in the seventh chapter and fifteenth verse, says, "Butter and honey shall he eat, that he may know how to refuse the evil and choose the good." Butter and honey are here used as being symbolic of simple food.

We find in Luke 24:42, that the first food which our Lord Jesus Christ ate after his resurrection was "a

piece of broiled fish and of an honey comb." This food he ate to prove to his Apostles that he was truly resurrected and was not merely a spirit, as some thought.

John the Baptist lived on "locusts and wild honey" for a long time. This is found in Mark 1:6.

And so we find throughout the entire Bible, all the way from Exodus to Revelation, references to bees and honey.

Sometimes we think we know considerable about bees, but when we stop to consider that there were bees and, no doubt, beekeepers, way back there over 5,000 years ago (Noah was a beekeeper) it seems that we have made comparatively little progress in the art of beekeeping.

And now, let me say, Brother Beekeeper, if you have a little trouble some time with making your bees stay in the hives in which you put them, or if you have some trouble about taking off honey some time, remember that Noah moved some bees into the ark, and that Samson took honey away from the bees, and they were "wild" ones, too. Furthermore, I do not believe that either one of them knew anything about the art of using either a smoker or a bee veil.

Noah must have had a goodly supply of honey to feed his bees, for they were shut up in the ark for over a year, while the whole earth was covered with water, and there was not a green thing anywhere on the earth.

Texas.

DOES BEEKEEPING PAY?

By H. Pearson

Does Beekeeping Pay? Yes or no. Bees are just like any other business. If taken care of at the proper time and the proper way they will give as large a per cent on the investment as any business one can go into. I have been in the bee business since 1865.

What is a good living? I can find several families that have cash, a home, plenty to eat and wear from an apiary of 50 to 100 colonies. But if you should wish to live like a king and do nothing yourself with all the fantasies of a wild brain, you may have to have several apiaries, with an expert beekeeper to look after them.

I figure it costs me \$6 per colony to produce 200 sections of comb honey and I haven't sold a pound for less than 20 cents. I calculate that a colony should average 100 pounds of comb honey per year for 10 years, so a person would have to keep colonies according to how well he wished to be supported. I have raised a family of 6 children. We have a home, horses, cows, pigs, chickens, sheep and the bees. I feel I have made a success.

If you feel that you can set a few colonies of bees out in the weeds in some out of the way place and not do anything for or to them, then, in the fall, haul in your honey by the load, dismiss the bee business from your mind and buy your honey. I

love the bees and like to work with them.

They don't talk behind your back. If they have any grievance they make it known in a way that you understand.

What I call a beekeeper is one who gets the most honey per colony with the least expense.

Wisconsin.

DOES BEEKEEPING PAY

By G. F. Marsh

This is what I have been trying to find out. So I decided to do some figuring on my own account.

Beekeepers say that one man can take care of from 200 to 300 colonies. Let us say 250. By the time a man buys the bees, 3 supers, frames, foundation, extra hives for nuclei and queen rearing, put up a building, buys a car, a truck, gasoline engine, extractor, cappings melter, tanks and all other accessory appliances, it will cost \$50 per colony, which means an investment of \$12,500. To allow for depreciation and interest, he should have 15 per cent, but we will allow 10 per cent, which is \$12.50 a year before the beekeeper gets a cent. At 10c a pound, and that is more than one could get at present for whole crop f. o. b. without containers, it means 50 pounds of honey to pay the above fixed charges. Ontario averaged about 100 pounds per colony for the last two years, which were exceptionally good. Probably 90 pounds would be a high average for a series of years. Now 50 from 90 leaves 40 pounds per colony, which the beekeeper has for himself, or at 10c, \$4. For 250 colonies it would be \$1,000, for gasoline, upkeep of cars, sugar for feeding, winter losses, risk and year's labor.

Most men would put the money into bonds and work at day labor.

Clarksburg, Ontario, Canada.

(This man is fairly pessimistic. But we should hear all sides. We used to get along with a smoker, a veil, a horse and wagon, an extractor, a honey knife and a capping can. But more is wanted nowadays. This man has even forgotten to mention the cost of the bee books and bee magazines. Who speaks next?—Editor).

PRODUCING SIX TONS OF HONEY AS A SIDE LINE

By Earle W. Gage

Six years ago an enterprising young man, living in Montreal, realizing the possibilities of beekeeping as a side-line in connection with office work, secured two colonies of bees and placed them in a vacant lot near his home. That lot today contains no less than 225 colonies of bees and this year the owner, G. L. Robertson, besides making an increase of 60 colonies and drawing 350 combs, has taken off approximately six tons of honey, which sold at an average of 20 cents a pound. Mr. Robertson is thus convinced that beekeeping will yield a reasonable profit as a side line.

When he first bought bees he had

no experience, and in order to learn the business he secured all the literature that he could and studied diligently. He found the combination of theory and practice one that soon taught him the main principles of the industry. From the first, he had a vision of expanding and growing to the point where the business would provide profitable use for all his time. He has endeavored to make increase each year, but not so great that the honey crop fails to pay expenses for the year. He makes the bees pay for the expansion as they go and give him a profit besides.

The lot Mr. Robertson uses is about a quarter acre, which he secured from the owner without rent. For the first five years he did all the work himself before and after business hours. For the past two seasons, however, he has had to employ a man during the summer months, and it has only been during these last two years that the business has shown a surplus but, he laughingly assures us, the profit is due to the increased size of the yard and not to a change of workmen.

New York.

SPRAY REPELLANT SUCCESSFUL

By H. N. Paul

Orchardists in the Yakima Valley sow alfalfa in the orchards to serve as cover crops. Most of them do not cut it during the season, so after June 15 there is more or less bloom all summer, and as they have to spray the trees with the lead spray about every two weeks after July 1, more or less spray drips on the blossoms under the trees, where the bees get it. The spray that hurts us the most is during the first three weeks of July, as this period comes between first and second cutting of alfalfa and bees just barely make a living and will fly one to one and one-half miles to pasture, which at this time is found only in an uncut orchard.

I sent to Boston for a 30-gallon barrel of milkol and furnished it free to the nearest orchardists to two apiaries which have always been poisoned more or less every year. As I did not have enough milkol, it was only used in one spray, but I was fortunate, as this was an unusual season in that there was a very short period between first cutting and sweet clover. Being very busy I only followed one spray rig about a half hour; the alfalfa under trees was in full bloom, with bees everywhere. As the spray rig moved along spreading spray charged with milkol one pint per 100 gallons of spray, the bees would scatter and not alight again while I was there. Now, as to real results: I harvested from those two yards of 100 colonies each, 95 pounds of extracted honey. Yes, I lost some workers, but I did not have enough milkol to furnish all orchards within one and one-quarter miles.

When you think of milkol, think of any of the black dips or disinfectants, except I think milkol is much stronger.

I believe milkol is a good repellent and will try it out on a larger and better plan next season.

It does not hurt the lead spray, but I believe it will add to it, and most certainly does not affect the foliage.

Milkol is manufactured by Sulpho-Naphthol Co., Boston, Mass.

If you should learn of a similar repellent at less cost, you will confer a favor on Yakima Valley beekeepers.

THE PENALTY OF RAISING AND SELLING HONEY

By A. C. Miller

"Hello, A. C.! How 'bee' you?"

If that greeting has been hurled at me once, it has been thousands of times. The speakers seem to consider it quite a witticism. It comes from good old friends, every-day acquaintances and just casual customers.

Because I keep bees and produce and sell honey, I am the "Bee Man" to everybody. And though it often gets a trifle monotonous, it is really a corking good testimonial of profitable advertising.

Then, when one settles comfortably in a car seat and anticipates a pleasant chat with a neighbor, one is greeted with a string of questions about bees and honey, so that instead of rest or instruction from another's conversation, one has to endeavor to entertain and instruct others with a topic worn threadbare to the tellers.

One gets very weary of the constant "talking shop," but it is the penalty of being a beekeeper, particularly a well-known one, and let me whisper, it is at the same time a great advertisement and a compliment to the efforts one has made to advertise his goods. That at the same time it has identified him with the business is his good fortune, for if he has taken pains to put out only a fancy article, his name on the package guarantees the quality and helps the sales.

The business of selling honey is peculiar to itself. One must know honeys, have colors, flavors, sources, peculiarities of granulation, sensitiveness to heat and many other features right in the front of one's mind and right on one's tongue. I was coming down town on the trolley recently and a good customer wanted to know if I could not get him a supply of "wild honey." He had just had some combs of honey taken from a forest tree. He spoke of its being so thick and "rich." Then, I had to go into the matter of its being "ripe," long in the hive, combs yellowed, etc. "Yes," he said, "the comb was yellowed and thick and chewy, not delicate and fragile like section honey." I had to explain that the very things which gave the "rich flavor" and the "chewy combs" were the things which made much honey unsalable in sections. Told him how propolis yellowed the combs, made the wax chewy and the aromatic resins gave some of the "wild" flavor he liked.

By the time we reached our des-

tinuation, everyone within hearing was paying close attention, and I felt much too conspicuous. 'Twas a neighborhood crowd, and both the grocer and I were well known, and it was excellent advertising, and all the better because not so intended. The listeners knew it was real, took it all in, and I know from experience, talked it over many times afterward.

All sorts of organizations seeking novelties to entertain their members ask for a "Talk on Bees and Honey," and now I wonder if I can talk about anything else. Repeating the same old things time and again, gets very monotonous, but when the lightning strikes you, remember it **pays**. It is better advertising than any printer's ink.

But when you attempt to tell "all about bees," to some woman's club, for example, you are likely to be bombarded with more questions than you ever suspected could be imagined. And you must be prepared to answer them, and woe to you if your

replies are not exactly the same to the same question that they were at some previous time.

By the way, to sweeten your way and to lessen the string of questions—and at the same time do some clever advertising—have some of your best honey there to be given out as samples. Instruct some fair member of the club in the proper way to put the right amount of honey on a rightly salted cracker and then steel yourself to be told "how sweet it is of you." When you have heard that a few hundred times you will—well, have difficulty in smiling "sweetly."

It is another of the penalties of being a "honey man," but remember, it **pays**, and "it is for money, ain't it funny?" as the old song goes, and that is what we are after.

So, as the stings as well as the honey go with beekeeping, so do tire-some and trying things go with successful merchandising of honey.

Cheer up. It might be worse.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

Question and Answer Department

It is a hard task to try to equal a predecessor as capable as our old friend Dr. C. C. Miller, who conducted this Question and Answer Department for so many years with praise from every one; and I often wondered whether I was conducting it satisfactorily. The enclosed quotation is leading me to hope that I may be giving satisfaction, as it is from a man who has long known me; so the reader will pardon me if I take the liberty of inserting the following words from Geo. W. York, former editor and publisher of the American Bee Journal, taken from "Bees and Honey," of Oakland, Calif.:

"While I yet owned the 'American Bee Journal' I had confidently decided to myself that should our beloved Dr. C. C. Miller pass away or become incapacitated for the work, I would ask Mr. C. P. Dadant to take his place in answering questions in its columns. Well, Mr. Dadant is doing that very work now, and is indeed proving himself to be a worthy successor in that line to the 'grand old man' of beedom—Dr. Miller."

Wintering Weak Colony

I have a few colonies of bees that I fear have too few bees to winter. Can you tell me a safe method of putting them over a strong colony so I will not lose the queen, and save the colony till spring?

WEST VIRGINIA.

Answer.—Putting a weak colony over a strong one may not be very successful. If the bees have occasion for flights during the cold weather, many of them may be lost because of their change of location. You know that bees remember the location of their hive, and if they have occasion for flights they may return to the old spot. Besides, some of

them may be drawn to the stronger colony beneath them and "drift" to it.

If I had weak colonies to carry through the winter and did not wish to put them in the cellar, I would cover each of them separately with some warm covering and, if possible, have a large case over them, opening it on warm days so the bees could take flight. I remember succeeding very well with some strong nuclei of only four frames each, by covering each of them, during cold weather, with large dry goods boxes, which were tipped back during warm days to allow them to fly. Packing cases have the disadvantage of not allowing them to fly in warm days, because the heat is slow in reaching through the packing. But this is not the case with a cover such as described. Additional warmth may be secured by wrapping the hives first in building paper. Try it.

Selling by Mail

As a subscriber and as a very much perplexed young "feller," I take the liberty of unfolding a plan to you and asking your judgment on the thing—because I need it.

My plan has been to market honey in a very attractive, serviceable jar, pitcher or other crockery utensil, through the mails, and upon speaking with the secretary of the association, I find that they have been marketing 5-lb. jars or pails, in the usual style without results through the mails, the trouble being that it costs 45 cents to ship said pail of honey out of the State anywhere near Ohio. Do you think this obstacle could be bridged?

Again, I had in mind the selling of orange blossom honey from California through the mails in a pretty jar or pitcher. In view of the price of this product, I know it was too high when I was there; do you think it feasible—this plan? From your experience, does it sound wise? Possibility of building it by direct mail advertising so that one created a demand for it?

Also, I have thought of introducing this handsome jar of honey, say a quart in measurement or less to gift shops, candy stores, etc. Does it appeal to you?

1. Would you deal with an association for the purchase of honey, or would you buy direct from the producer?

2. What is the price of orange blossom honey?

3. Can I buy honey in the East at a better price than in the West?

Briefly, I am a disabled ex-service man who is seeking to build up a legitimate business in line with my past mail order and advertising experience. I would like to raise bees, if it didn't take so much to begin—and it seems a quicker way to get results by advertising a high class honey and working up a good trade.

I would appreciate your advice. If there is a charge for it advise me. Please cover it from all points, because I want to do something, as my compensation from Uncle Sam is not providing enough. I enclose you an addressed envelope and trust you will write fully at your convenience.

COLORADO.

Answer.—Generally speaking it does not pay to advertise honey to be sent through the mails at a distance. The cost of shipping to the 6th zone is 9 cents for single pounds or 81 cents for a 10-pound package. If we add container and wrapping, we will find a cost of not less than 10 cents per pound. In Colorado this would be prohibitive, because the purchasers are not close at hand. Most of the honey has to go outside of the State. In some other States, the conditions would probably be different, if the customers can be found within the 1st to 3rd zones. Dr. Bonney sold a great proportion of his honey by parcel post. Personally, I have but little to do with parcel post shipments.

1. Buy where you can get honey cheapest. If you buy in car lots, you will find an advantage in buying from an association. Smaller lots may often be bought from individuals.

2. It is out of the question for us to give you the price of any kind of honey, for prices fluctuate and the only prices anyone can quote are those that they ask themselves.

3. I believe the West furnishes honey much cheaper than the East, for they can rarely consume all they produce.

Uniting

I had a swarm to come off August 25, and found it not very strong at the end of the season. I set them on top of another colony with excluder between, but have concluded that I did not do the right thing, but time will tell. What is your opinion?

INDIANA.

Answer.—That is not a bad method, though it might have been a good plan to remove the hive that contained the swarm after the bees left it to join the other colony. It would also have been best to kill their queen first, so that they would not hesitate to join the other colony.

Swarming With Clipped Queens

I have had an experience that I am unable to explain. It concerns 3 colonies on which I had a few section supers left from last year. They wintered well, were strong when unpacked and built up rapidly. From the last week in May until July 4th, it rained, and these powerful colonies did not have more than 6 working days.

Examination on July 5th showed that queens had practically stopped laying and were small with very little brood of any kind; no queen cells. It was reported on July 24th that the bees were casting 2 or 3 swarms a day. I could not get to them until July 30th.

When examined July 5th every queen was clipped. The 3 colonies we are interested in had each cast a fine swarm which had clustered and at least one second swarm which went off without clustering. Examination on July 30 showed little honey, about 4 frames of bees and scarcely any brood, but a few cells of brood in all stages. Queen cells were found from which queens had emerged, and others which were torn open at the sides. When the queens were found they were small and their wings were clipped. No other queens were in the hives.

MASSACHUSETTS.

Answer.—I can see but one explanation of your experience. The queen in question was an old queen or an inferior queen, which

amounts to the same. The bees reared queen cells to replace her and swarmed when the young queens emerged. This is unusual, but not rare. The old queen, being unable to fly, probably went out with the swarm and was forced to return to the hive. Usually such a queen is lost when not found by the apiarist.

The swarm that did not settle was headed by a young queen on her wedding flight. That is usually what happens when a swarm delays in departing. The young queen goes out to mate and the bees follow her. Such swarms are usually called "runaway swarms."

Swarming is much more likely to take place in an irregular season, when honey comes in by spurts, with alternate days of rain and sunshine, than in a steady honey flow. Old queens are a frequent cause of swarming, as the bees try to supersede them. Young queens are one of the requirements of swarm prevention.

Keeping Bees in House

I have a three-story house and expect to keep 3 or 4 hives in third story, which we do not use for living purposes; it faces the east and southeast and is 30 feet or more above the street. Would there be any danger to anyone on the street? Is there any law prohibiting this?

ILLINOIS.

Answer.—I do not believe there is any objection to your keeping bees in a third story, if you open the windows, or make a passageway or a sort of tunnel from the entrance of the hive to the outside. The latter way would be the best, as it would allow the room to be sheltered from the rain and would keep the hives warmer in winter. There would be little or no danger of the bees stinging anyone on the street, unless they were mismanaged. When you handle the bees, you could open the window or windows, so as to allow those of the bees that got out of the hive to get back to the entrances on the outside. The law will not interfere unless your bees interfere by stinging people on the street.

Increase—Forage

I have been keeping bees for pleasure for a year, and like the work so well that I am planning to gradually work it into a specialty.

1. Would it be wise, after one has increased to about 100 colonies, to make up a lot of nuclei and put these in a new location to build up, or would it be better to move only strong colonies from the home yard and make just enough nuclei to take the place of those that are moved?

2. How old does a eucalyptus tree have to be before it yields nectar in paying quantities?

3. What is the number of colonies that can be supported by an acre of eucalyptus?

4. Would it pay a man to sow Hubam clover on waste ground just to get it started in a locality where it is not classed as a weed?

5. Buttel-Reepen, in his paper on the habits of bees, mentions the practice of building up colonies in the spring by exchanging places with ones that are extra strong. Would this plan work in this locality if one used it in the fall, instead of uniting colonies, to let the young bees of the strong colony drift into the other to strengthen it?

CALIFORNIA.

Answers.—1. For my own satisfaction I would prefer to have the nuclei near at hand and transport the strong colonies to the out-apiary, for the reason that nuclei are likely to need feeding, or strengthening, or may be in danger of robbing, etc.

2. Will some of our California beekeepers or some of our Australian readers give a reply? I do not know just what to say. Bailey's Standard Cyclopaedia of Horticulture quotes Bulletin 196 of the California Agricultural Experiment Station (1908) as furnishing very accurate information concerning the Eucalypti and the manner of propagating (There are so many kinds of eucalypti, and they vary so in nectar secretion, that it would be difficult to say.—F. C. P.)

3. The number of colonies would undoubtedly depend upon the size of the trees from which a crop was expected. But it would probably be a mistake to expect to support an apiary solely on eucalyptus.

4. Hubam clover will certainly pay as a weed or a hay crop.

5. Exchanging colonies when there is some honey in the fields has but one disadvantage; it weakens colonies that might otherwise have given a big crop. In times of scarcity there is a little danger of the bees of the weak colony being killed by the bees of the stronger, although that danger is remote.

Bee's Load—Moving—Disease

1. When a field worker brings nectar in the hive does she empty it directly in a storage cell, or transfer it to another hive worker who in turn empties it in the cell?

2. Will it be possible for me to successfully move some colonies about 50 feet during the cold winter weather, without some of them going back to the old location and being lost?

3. During the early summer I occasionally noticed, early in the day, bees crawling on the ground near the hive and 40 to 50 feet away. Later in the day they disappeared. These crawling bees appear to be normal and not diseased. What is the explanation for this behavior?

NEW YORK.

Answers.—1. They may do either, although during a heavy flow, with a large force of young bees in the hive, the field worker will be likely to hand out her load to any of them. But if she carries pollen, as they often do, she will herself deposit it in the cells and will then also deposit her nectar, which may be later stowed away in other cells by the home nurses, the young bees.

2. Colonies moved in cold weather will usually lose more bees when a warm day comes; than if they had been moved during a warm forenoon after a few days of confinement, taking pains to give them a good drumming after having closed them for transportation. The question is to apprise them of the fact that something unusual is taking place, so they may take notice of the change of location at once when emerging from the hive. After having drummed them, we place a slanting board in front of the entrance so they may at once notice that something is changed in the location. Bees remember their location after several months of confinement and we must impress them with the idea of having swarmed before they will look at their surroundings.

3. We have as yet no explanation for the behavior of some bees which seem to suffer from some such trouble as May disease or paralysis, and get well of it in a few hours. We have seen that on a large scale at times, in our own apiaries and are unable to explain it. Perhaps it is something like Tarsonemus causing this trouble. We have much to learn yet.

Moving Short Distances—Introducing Queen to Swarm

1. I have seven colonies of bees which I wish to move about fifty feet. Could I move them, if I waited until it was cold enough so they would not fly for two or three weeks. Will they go back?

2. If a colony swarmed with a clipped queen and I killed the queen, could I have them in a new hive and let a new queen run in with them, or how could I introduce a queen? My bees are black and I thought if I could introduce a queen in a swarm I could let the finding of a queen serve two purposes I could clip my queen and when they swarm I could introduce an Italian queen.

NEW YORK.

Answers.—1. Bees remember their location a long time, and if you moved them as you propose, you would lose a great many at the wrong time of the year, just before winter. If you must move them, the way in which you will lose the least number would be to shut them up just before a warm day, then drum

them and disturb them a great deal at the time of moving them, so they may know that something wrong is happening to them. This will compel them to investigate and if you release them during the excitement, many of them will notice that their hive is in another spot. However, you will probably lose some anyhow. It is suggested to leave one hive, the weakest one, in the old spot, and not move it until a day or two afterwards. It will then get the bees that insist on returning to the old spot. Place a slanting board in front of each hive in the new location, as they may notice that something is wrong, as soon as they take flight.

2. The bees of a swarm would perhaps accept a new queen, though they might fight her and ball her, or go back to the hive. But the worst difficulty with your method is that you would have to keep a queen waiting perhaps for several weeks. It is much more to the point to hunt up the old queen when you wish to remove her. If you could find her to cap her, you should not have any trouble in finding her again. A clipped queen is readily seen on the combs.

Inserting Queen Cells

I have been rearing queens this season and some died in the cell. I cut out the cells I prepared for keeping the queens separate while they were hatching, and put each in a nursing cage and kept them in a queenless swarm. But I left one good cell out on brood comb; that one reared fine. But of those that I had caged, not one emerged. This is my first season. I cut cells out for rearing. I had figured may be I did not cut the cells out at the right age, or can't the bees take care of the cells right in the cages? ILLINOIS.

Answer.—The only possible reason I can assign to the loss of your queen cells is that they were not kept sufficiently warm. They must be kept in the center of the cluster of a colony or a nucleus.

The proper time to cut out and insert queen cells is the tenth day after the colony has been made queenless. Open the hive on the ninth day and count the cells and make as many colonies queenless or nuclei as you have cells to spare. Then insert them on the tenth day. You must not handle them roughly, not put them in the sunshine and not let them get cold. If you do the thing right you should succeed nine times out of ten, at least. Always place them in the center of the brood combs. If the colony to which you give a queen cell has no brood it is best to give it a comb of brood taken from a queenright colony.

Queen Rearing—Swarm Control

1. What is the most up-to-date book published on "Queen Rearing?"

2. What is meant by the "Demaree plan?" I know it was published, but at that time I was not a subscriber of your paper.

3. At swarming time if I should kill the old queen and substitute a young laying queen, would the bees accept her?

4. I had a swarm of bees that returned, leaving a queen ball. Why?

NOVA SCOTIA.

Answers.—1. "Practical Queen-rearing," by Pellett is the most up-to-date because it gives the popular methods in use.

2. The Demaree plan was inaugurated by a Mr. Demaree, of Kentucky, some 30 years ago. It consists in removing all the brood from the brood chamber, leaving the queen on empty combs or foundation and placing all that brood in a third story, or even in a fourth story, placing empty stories between the lower story and that containing the brood. When it is properly done, at the right time, it prevents swarming. It is practical, especially in the production of extracted honey.

3. It is quite probable that the bees would accept a young queen, if she was fertile, and introduced in a careful way.

4. I don't know. A number of things may cause balling of a queen. I would guess that there were two swarms and that some bees caught hold of the other queen.

Over-wintering Foulbrood

Will you kindly give me some advice on the following?

In your opinion, will a colony having a light case of European foulbrood, when packed for winter, still have the disease when brood rearing starts in the spring?

I expect to have some queens reared from a purely-mated Italian, in about two weeks. These queens will be mated in about three to four weeks from date. My idea is to introduce one of these queens to each colony affected as above. If the disease should stay with the colony through the winter, would these young queens be prolific enough to indicate the disease, provided they were purely mated? NEBRASKA.

The answer to your question will be guess work on my part, for I do not believe we have yet seen such a case.

If the colony is strong, it may overcome the disease; especially if it is given a young, prolific queen. If it suffers from winter losses, it may still have the disease, when rearing brood in spring. The consensus of opinion among people who have had experience with brood diseases is that a strong colony, well provided with everything needed, overcomes European foulbrood eventually.

Requeening

1. Regarding requeening by the cell method, I wish a little more information, as I intend to requeen some 40 colonies next spring.

As I understand it, these cells should be used on the 10th day. The day previous all colonies to be requeened have been made queenless. Now, if unfavorable weather should occur on this 10th day, I would be out of luck. Can these cells be used on the 9th, or even as late as the 11th day?

2. Do you use a West cell protector?

3. After inserting a queen cell, when do you look to see if it is accepted?

4. How soon would you expect to find the queen laying? If not, do you test with comb having fresh eggs? SOUTH DAKOTA.

Answers.—1 and 2. The weather is never so unfavorable when queen cells are raised, as to entirely preclude the cutting out and inserting of queen cells. We have even done it in the rain, with an umbrella over our heads. It takes but a few moments. If you make the change on the 9th day, it will be necessary to make your hives queenless on the 8th, and you run just as much risk of bad weather; but the nearer queen cells are ripe, the better they are accepted. It will never do to insert queen cells on the same day as the hive is deprived of its queen, unless you use cell protectors, which we never did. But there is no objection to the use of them. As to inserting queen cells as late as the 11th day, there is some risk of some of the cells hatching and the young queens destroying the other cells. We have never been so successful in introducing virgins as in using queen cells.

3. You may look 2 or 3 days after. If the queen cell is opened on the end, the queen is evidently hatched. If she was killed, there would be new queen cells built within 2 or 3 days.

4. The queen does not begin to lay till 6 or 8 days after hatching. Eggs in the cells are the best evidence of her presence, if those eggs are regularly laid and not at random or several in a cell, which would indicate the presence of laying workers.

If there is no queen, give them some fresh brood or another queen cell. It is well to rear several batches at different dates in order to replace missing queens.

Read some textbook on beekeeping.

Extracting Honey

1. I am going to change from comb to ex-

tracted honey production; am a commercial producer. I wish your opinion on the question of full-depth 10-frame extracting supers versus shallow (5½) supers for 5½ frames.

2. Will 5½ frames with medium brood foundation require wire?

3. How much honey will two men with an 8-frame power extractor run out in 8 hours? MONTANA.

Answers.—1. There are advantages and disadvantages to both the deep and shallow supers. The deep super gives a larger quantity of honey, with less handling, and the combs may be used in feeding the bees when they do not have enough. On the other hand the queen is more likely to migrate from a large body to another large body than to a shallow one, and a deep super may give too much room in a cool season. The combs are also heavier to handle in extracting and more easy to break. Personally I prefer the shallow super. With our deep frames a deep super would be too large.

2. I do not think medium brood foundation needs wiring in shallow frames.

3. Your question is not very explicit. If you mean only uncapped and extract, you may be able to extract 6,000 to 8,000 pounds. We have extracted 5,600 pounds with a man power extractor, and the addition of power will not very greatly speed up the results, as it takes one man to watch the machine and change the combs while the other man is uncapping them. Personally, I do not like the power extractor, on account of its noise and odor of gasoline. But the young generation is above those prejudices. They are used to the thundering noise of the flivver and appear to enjoy it. I don't.

By the way, the quantity of honey you may extract in 8 hours, depends quite a little on how full the extractor combs are. You may have to handle twice as many when they are light as when they are heavy. The warmth of the atmosphere and of the honey has also some influence upon the result.

Average Returns

What is the net average income per hive for beginners who are making it a business and who are careful and studious?

WASHINGTON.

Answer.—It is not any more feasible to give you the average income per colony, in honey and increase, than it would be possible to give you the average returns per acre from a piece of land, or the average amount of money to be derived from the milk of a cow. It depends upon management, location, the use of modern implements, and, above all, seasons. You will find good locations in any state.

Our advice is for you to make sure that you can handle bees without being too much afraid of them, select a good honey-producing location, and start on a small scale so as to avoid expensive mistakes. Be sure to read some textbook, as an attempt to keep bees without previous information will spell trouble in many cases. We will gladly give you further information as needed, but you will get the principles of the business in a good textbook.

Formic Acid in Honey

We see many references in beekeeping literature to formic acid. It is stated that formic acid is a preservative substance in honey and that the acid in the bee's sting is formic acid. We are told on good authority that as a matter of fact, the acid which is found in honey and in the sting of the bee is not formic acid, but merely expressed as such by the chemists for the want of a better knowledge of its nature.

SOUTH DAKOTA COMING TO THE FRONT

By R. A. Morgan.

Great changes have taken place in this country of ours during the past few years, and it will not be long before some of the people east of Chicago will discover that even South Dakota is on the map.

Some time ago I was a beekeeper near Madison, Wis., and we knew that California was a great honey-producing state; outside of that, Ohio, Illinois, Michigan and Wisconsin constituted the western honey-producing world; but while they were then and still are fine honey-producing states, the country west of the old Mississippi is rapidly gaining ground, in the number of tons of honey as compared to the number of colonies of bees.

Any person who is interested in honey production in this country can take his maps and drive down a brass tack at Mitchell, South Dakota, and in locating an apiary be careful not to get too far from that brass tack.

And why is this? There was a time when the bee wizards were only found in the woods, but that day has passed and gone never to return, for the reason that the best honey plants known grow only on the open prairie, and there is more available land on one quarter section of land in South Dakota than in twice that surface in much of the country east of the Mississippi.

There was a period in our history that basswood, raspberry and white clover were the great honey plants of the country, but their period of bloom was so short and they were so sensitive to drought, that they are no longer the only honey plants to be depended upon. I took four 2-frame nuclei on May 1, here in Vermillion, S. D., increased them to 7 and took off 168 sections of beautiful white honey and 40 pounds of extracted on an average spring count, and the seven colonies have plenty of honey for winter stores. The flow from sweet clover was fully 90 days of duration, and from July 1 to 10 we had a bountiful flow of basswood, but the bees did not seem to notice it much, and you can taste very little basswood flavor in the honey.

We have not had a crop failure here in the past 20 years, and tons of sweet clover seed is being sown in each township in this part of the state every year, and if any one is interested I would be pleased to send them a sample section of honey which will compare favorably with any between the oceans.

Vermillion is a fine city with seven miles of paved streets; it has the State University, municipal ownership of waterworks and electric lights; and one of the best honey-producing sections east of the Rockies.

Any intelligent beekeeper with modified Dadant hives can make his mark in southern South Dakota, producing honey, if he will apply himself.

FRENCH CANADA AND THE INTERNATIONAL CONGRESS

Dear Mr. Dadant:

I am glad to hear that you are already making plans to attend the great Congress of Beekeepers at Quebec in 1923.

November being the most disagreeable season in Quebec, I trust we may be able to get the date of the International Congress set for August-September, the most attractive season for visitors to come to Quebec.

Jacques Verret,
Charlesbourg, P. Q.

(We must make the proposed Congress attractive enough to draw a number of our European and South American friends, so that the beekeepers may get acquainted with their brothers from other countries. We suggest a meeting in August and a series of local meetings in the different provinces of Canada, so that the beekeepers from other countries may become acquainted with the different parts, for we happen to know that Canada is quite progressive and successful in beekeeping. We also suggest that the International Convention be held during three consecutive days, the first in the French language (the language of Quebec) the second day in English (the language of Ontario), and the third day in such languages as may be preferred by the visitors from different parts. There is no reason why such a meeting cannot be made the best attended and the most enjoyable of any international meeting of beekeepers ever held.—Editor.)

POSTAL REGULATIONS ON SHIPMENTS OF PACKAGE BEES

On October 13, 1922, postmasters were notified by order No. 8180 of a change in regulations pertaining to shipments of live bees. Though the changes are not great, we give below the regulations as amended:

"Paragraph 1, Sec. 476. Honeybees in quantities may be sent in the mails under the same conditions as prescribed for queen bees and their attendant bees when delivery can be made to the addresses within a period of five days. If the cages are wooden the material of which they are constructed shall not be less than three-eighths of an inch thick and the saw-cuts therein or the space between slats shall not be over one-eighth of an inch wide; if wire screen is used for the sides of the cages there shall be two thicknesses of screen separated by slats at least three-eighths of an inch in thickness. The container shall be provided with a suitable handle and no water or liquid food shall be placed therein. Such parcels shall be transported outside mailbags."

"Paragraph 4. Honeybees mailed under the conditions set forth in the preceding paragraphs of this section may be accepted for insurance or collect on delivery, and indemnity will be paid on account of the outright loss thereof only in accordance with the

provisions of amended Section 488, Paragraph 13."

Regulations concerning queen bees and attendants are not changed by the order.

THE HONEY CROP IN QUEBEC—SOME SUGGESTIONS

By Jacques Verret

The drought, from June 20 to September, was injurious to those beekeepers whose bees were not ready for the honey crop early. They were too late to harvest their share.

My Millaflora apiary of 100 colonies, spring count, was increased to 217 during the season and we harvested 6,200 pounds of nice white clover honey. We sold the entire crop to my own business house for 18 cents. Last year, having had 6,000 pounds of honey, I was unable to sell it to the retailers at 15 cents. As I live on a well traveled road, near a city of 100,000, I decided to advertise. An expenditure of \$10 in the local dailies brought me orders in quantities for honey in 5-pound packages at \$1.25. It sold like hot cakes. I began the same method this year and half of the crop is already disposed of.

We had quite a storm and snow and frost in October, from the 13th to the 18th. Then the Indian summer came and our bees are enjoying it still. Some beekeepers got frightened when the storm came and put their bees in the cellar. Ours will not be put in for a few days yet, for they are still warming themselves, on the alighting board, every day.

Nov. 3, 1922.

FLEAS HAVE FLEAS

Those who visited the Old Hermitage apiary at Buxted, in July, were able to see under a powerful microscope some of the mites and other nasty creatures which trouble the bee-world. Among other creatures on view, I am told, was that too familiar parasite of the queen bee, which bears the scientific name of *Braula Caeca*, but which is, in common language, the red louse. This is so large that it does not require a microscope to observe it. I have seen queens so covered with this pest as to be unable to move. They can, with a little dexterity, be picked off with the hand. But what was revealed by the microscope on this occasion, and of quite unusual interest, was that of a tiny parasite living on the larger parasite, a bug on a bug. I once heard a learned biologist describe and show on a lantern screen, a flea that lived on a flea, recalling Dean Swift's epigram:

"a flea
Has smaller fleas that on him prey,
And these have smaller still to bite 'em,
And so proceed *ad infinitum*."

It runs through all life—animal and vegetable. A naturalist I met at Haslemere showed me some fungus on a pine which itself had a fungus living on it.—Rev. A. A. Evans in The Herald.

Atkins Married

E. W. Atkins, of the G. B. Lewis Company and formerly an extension specialist in beekeeping in the U. S. Department of Agriculture, was married on October 28, to Miss Laura Stapleton, of Watertown, Wis. They will make their home in Watertown.

PACKAGE BEES, QUEENS AND NUCLEI**DOLLAR A POUND**

Queens accompanying, \$1 additional.
Nuclei, 2-frame -----\$3.00
Nuclei, 3-frame -----\$4.00

Either Standard or Jumbo Langstroth

Queens, untested, \$1; tested, \$1.50.
Breeders, \$5.00, \$10.00, \$15.00.

These low prices are made in consideration that orders are booked early, so that we may prepare for them in the winter. Send for circular.

Loveitt Honey Co.

602 N. 9th Ave., Phoenix, Ariz.

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REMARKABLE DISCOVERY THAT CUTS DOWN THE COST OF PAINT SEVENTY-FIVE PER CENT.

A Free Trial Package is Mailed to Everyone Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., discovered a process of making a new kind of paint without the use of oil. He named it Powdrpaint. It comes in the form of a dry powder, and all that is required is cold water, to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to A. L. Rice, Inc., Manufacturers, 23 North St., Adams, N. Y., and a trial package will be mailed to you, also color card and full information showing you how you can save a good many dollars. Write today

BUYING BEES AT RANDOM

By L. H. Cobb

Many newly interested in beekeeping are looking out for a chance to buy bees, and I want to warn them it is a precarious business this buying bees at random, if you are not a good judge of appearances, and can take stock of what you are getting before buying. Hives of bees are not always what they appear to be, as I have found out to my regret.

One year I bought nine stands from an old fellow who said he had kept bees off and on all his life, and when I insisted that I wanted only Italian bees in dovetailed hives with Hoffman frames, he assured me they were it. They were, in a way, or had been. I never had the pleasure of giving many of them a close inspection, as I took his word before buying, and found some of them so crisscrossed inside and so full of wax-moth larvae that when the few bees they contained died out the first winter I burned the whole business except the bodies. Three of the lot were new swarms when I bought them and were really worth what was asked, as they were in good hives, so I felt not so badly, but just think what might have been if I had not had those three swarms. Two I tried to transfer from the old hives and had more trouble in doing it than the bees were worth, for they were not very strong and had the most persistent attachment for their old home I ever experienced.

Colonies of bees can be purchased at sales very often, and this year we bought two at a great bargain, but it was a chance. If one can go ahead and examine the hives it is easy to find out what they are worth, but unless you know bees it is best to get someone who does to examine them for you. There are so many things to look after. If in the fall or winter they must have winter stores sufficient to winter safely or they have no value to you, even if they are in good hives and have neither disease nor solidly built combs. If they are weak in bees and the fall flow has been nix on account of dry weather, so the bees that are there are old, you will not have any bees by spring. If

you buy in the spring and the bees are active when you buy them, if they are in good hives with movable frames, you are comparatively safe for if they were weak or queenless they would not be very active.

Package bees offer a good method for starting an apiary if you buy a queen to come with them, though it is even better to buy a frame of brood too, and have them all shipped on it. A two-pound package with frame of brood bought early is equal in prospect for a crop to a good home wintered colony, and I believe yields surplus more often.

Kansas.

SELLING ABROAD

New Zealand beekeepers have found it necessary to seek an outlet for their honey abroad, owing to prevailing low prices. They have established a packing plant in London where they put up their product in small glass jars and sell through the English trade. It is sold under the brand of "New Zealand Imperial Bee Honey," and the London agents are very optimistic about the future of the business. They anticipate shortly to be able to dispose of the total surplus of New Zealand beekeepers at profitable prices.

With hundreds of American cities where honey does not appear on the shelves of more than half of the grocery stores, American beekeepers have an unlimited market if they but cultivate it. If New Zealand beekeepers can ship their honey half way round the world and then pack it in small containers to sell through the trade, American beekeepers should be able to sell to advantage in their own markets. We find on investigation, that one market will be glutted with honey while there is little or none to be had in others. If proper attention is given to the development of our markets, far more honey than is now produced can be sold at good prices.

Vansell to California

Prof. G. H. Vansell, formerly of Kansas and later of Kentucky, is now in charge of beekeeping at the University Farm at Davis, Calif.

QUEENS

Three-band Italians

PACKAGE BEES**QUEENS**

Silver Gray Carniolans

Western headquarters for PACKAGE BEES and RELIABLE QUEENS. Order now for spring delivery. Shipping season for PACKAGE BEES starts April 1, closes July 1; Queens April 1 to October 1. A small deposit reserves your shipping date.

Young bees, every one from a clean colony, with no honey used in shipping cages, also County Inspector's Certificate of bill of health with each shipment I guarantee. Write for circular and prices, stating quantity desired and date of delivery.

J. E. WING, SAN JOSE, CAL.

155 SCHIELE AVE.

CONDENSATION

By George Gilbert

Prop a pane of glass up, a stick under each corner, so that it is perfectly level. Now blow steam against the under side. The steam condenses in drops, that unite until the water drips downward.

Now elevate the rear edge of the glass and blow steam up against its under side. The steam condenses, the drops form, but instead of falling under the glass, they follow the slope of the glass, on the inclined under side and reach the edge, dripping off there.

Now forget the glass and consider an oil-cloth hive cover, under the wood outer cover. The oil-cloth is stretched fairly tight, if put on aright. The bees propolize it over in fall until it is like glass after the propolis sets and the air cools. The propolis is just bee-varnish and, like man-varnish, it becomes hard and glassy in cool weather. Now let the moisture from the bees condense against the under side of the glassy, propolized oil-cloth. If the hive stands level, the water drips onto the bees. But if the hive is sloped, it follows the incline of the under side of the glassy oil-cloth and strikes the side of the hive and drips down, and out of the entrance. It doesn't do the bees any harm.

Moisture in the hive, like measles, is found in the best regulated families. So fix your hives in such a way that when the dew point does come in even the best appointed hive, the drops will automatically take care of themselves.

(That is a good idea. But I like still better to have some sort of blanket, unpropolized, with moisture absorbent above it. Then the moisture will get away from the bees for good and you will remove it from the upper story in spring, when you take the bees out of winter quarters.—Editor.)

We Beg Pardon

On page 515 of the November American Bee Journal we mention having received from Mr E. Wenzel a copy of the seal of the City of New York containing a straw skep. Mr. Wenzel calls our attention to the fact that it was not the seal of the city, but the seal of the Bank for Savings, formerly the Bleeker Street Savings Bank. The bank was incorporated in 1819, and is one of the oldest in the city. The city itself was chartered long before that date.

Heather Again

On page 193 of our May issue we published a quotation from a western beekeeper to the effect that there are large areas of heather in the north-west. Since that time, specimens have been received at this office and identified as mountain heather instead of Scotch heather. There are two species, one is *Cassiope mertensiana* and the other *Phyllodoce empetrifomis*. The true Scotch heather is *Calluna vulgaris*.

As yet we have been unable to se-

cure any definite information as to whether the mountain heather is of value to the bees.

Crawford County, Illinois Organizes

The leading beekeepers of Crawford County met in Robinson, Ill., Saturday, Oct. 21, 1922, and organized the Crawford County Beekeepers' Association. Cliff H. Conover was elected President; Paul L. Pier-sall, Vice President, and Herman McConnell Secretary-Treasurer. Field meets with actual demonstrations

will be planned for the ensuing year to arouse maximum amount of interest. The excellent season just passed has greatly revived this much-neglected industry throughout the county.

A Western Beekeeper's Library

Mr. Cary W. Hartman, President of the California State Beekeepers' Association, informs us that in order that the Far West may also have a beekeepers' library, Mr. George W. York has donated his entire library to the University of California.

THE BEE WORLD

Monthly Magazine World-Wide in Scope

The world's foremost educators, writers and scientists in beekeeping are contributors to the "Bee World," monthly magazine published in England.

Its subscription price is \$2.50 a year.

By special arrangement we will handle and expedite all yearly subscriptions to this valuable magazine sent to us

We recommend it as desirable

AMERICAN BEE JOURNAL, Hamilton, Ill.

PACKAGE BEES FOR 1923

THREE-BAND ITALIANS ONLY. BRED FOR BUSINESS

A 2-pound package of the Yancey Hustlers, with a select untested queen, for \$5.00; 25 or more, \$4.75 each. Attractive prices on large lots. One-fifth cash books your order. Safe arrival and satisfaction guaranteed on every package and queen shipped. Orders are now coming in for spring delivery. Better send in yours and make sure of shipping date. We do not accept more orders than we can fill promptly.

CANEY VALLEY APIARIES, Bay City, Texas

YANCEY BROS., OWNERS

BEEKEEPERS WE MANUFACTURE DOVETAILED HIVES, HOFFMAN FRAMES, SECTIONS AND SHIPPING CASES

Our hives are made of best grade White Pine, cut accurate and smooth to standard measure. Sections are made of Basswood polished on both sides. There are no better made.

We carry a complete line of everything used in the apiary. Our shipping facilities are as good as can be found anywhere. We want your business. We guarantee prompt and satisfactory service. Price list free.

MARSHFIELD MANUFACTURING COMPANY, Marshfield, Wis.

GOLDEN ITALIAN QUEENS

	Nov. 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12
Untested.....	\$2.00	\$ 9.00	\$17.00	\$1.50	\$ 8.00	\$14.50
Select Untested.....	2.25	10.50	18.00	2.00	9.50	16.00
Tested.....	3.00	16.50	30.00	2.50	12.00	22.00
Select Tested.....	3.50	19.50	36.00	3.00	16.50	30.00

BREEDERS \$12.50 TO \$25.00

Queens for export will be carefully packed in long distance cages, but safe delivery is not guaranteed
NO NUCLEI, FULL COLONIES OR POUND PACKAGES

BEN G. DAVIS, Spring Hill, Tenn.

HONEY CONTAINERS

We have some interesting prices to offer on honey containers. Send us a list of your requirements and let us quote you our prices.

- 2½-lb. cans in re-shipping cases of 24 and crates of 100 and 500.
- 5-lb. pails in re-shipping cases of 12 and crates of 100 and 200.
- 10-lb. pails in re-shipping cases of 6 and crates of 100.
- 1-gallon square or oblong cans with 1¼-inch screw cap in boxes of 6.
- 1-gallon square or oblong cans with 1¼-inch screw cap in crates of 100.
- 60-lb. square cans with 1¼-inch screw cap in cases of 2 cans.
- 16-oz. round glass jars in reshipping cases of 2 dozen.
- 6½-oz. tin top tumblers in re-shipping cases of 4 dozen.

Shipping cases for comb honey for any style sections in the 24-lb. or 12-lb. size.

Send for our catalog showing full line of Bee Supplies.

AUGUST LOTZ COMPANY, Boyd, Wisconsin

PORTER



**BEE
ESCAPE
SAVES
HONEY
TIME
MONEY**

For sale by all dealers

If no dealer, write factory

R. & E. C. PORTER, MFRS.
Lewistown, Illinois, U. S. A.

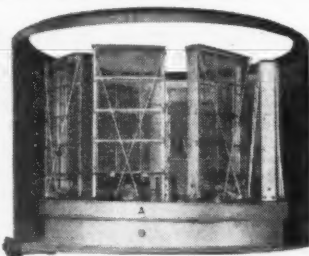
(Please mention Am. Bee Journal when writing)

WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 1922 price list. Our quotations will interest you.

The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

Lewis Extractors



Lewis-Markle Power Honey Extractor.
Tank cut away.

A—Pan over machinery. B—Bottom of tank.

Made in 4 and 8-frame sizes. Accommodates 2 sizes of baskets, power operation, machinery underneath, no vibration, tank and basket instantly removable for cleaning. A commercial success. Circular free. Address:

G. B. LEWIS COMPANY
WATERTOWN, WIS., U. S. A.

There's a Distributor Near You.

The Bee World

The leading bee journal in Britain, and the only international bee review in existence. It is read, re-read and treasured. Will it not appeal to you?

Specimen copy free from the publishers: The Apis Club, Benson, Oxon, England.

Send us a post card today. It is well worth your little trouble.

We Buy and Sell HONEY AND BEES

BROOKSIDE APIARIES
Bennington, Neb.

BOOKING ORDERS NOW for spring delivery. Let me know your needs and I will send lowest prices. My Italian queens are guaranteed to be as good as money can buy. Very prolific, gentle, and the very best honey gatherers. Safe arrival guaranteed. Write.

ULIS BLALOCK, Christine, Tex.

MACK'S QUEENS ARE BUSINESS BUILDERS

Write for catalog and prices for 1923.

HERMAN McCONNELL
Robinson, Illinois

Honey Losing Flavor

Mr. Editor: I notice on page 476, September American Bee Journal, 1st column, that you do not seem to know that granulated honey, when melted, is better with a little cold water put on top, so as not to lose the flavor, which is removed when the honey is dissolved. (No, we did not know it. It is worth trying.—Editor.)

We have had one of the worst seasons, this year, for crops; nothing but cold and wet. We had 11 wet days in May, 11 in June. Since then, no wet days and very little honey to remove.

S. W. Leatham,
Horley, Surrey, England.

Hints

To dislodge bees from a place with a dead end, such as a log, use a piece of rubber tubing long enough to reach through to the back of them, and hold to the nozzle of the smoker. —(Victorian Bee Journal).

Goldwing

The editor acknowledges a complimentary copy of "Goldwing, the Life Story of the Queen Bee," from its author, Tarlton Rayment, one of our good friends in Australia, and already author of several works on bees. This is a nature story, in the line of fairy stories, for children.

Vancouver Exposition

The largest display of honey and beekeeping products ever assembled in British Columbia was shown at the Vancouver Exposition this year. Several exhibits were crowded out for lack of space. Honey from many points in the Province, including Frazer Valley, Vancouver Island, Ascroft and Vancouver district, showed a wide range of territory devoted to apiculture. The largest quantity of honey came from the Fraser Valley.

Six thousand samples of honey were given away during the week, the honey sample stands being a scene of constant curiosity and interest to the public.

Bee Mating Station

From the circular issued by the Colorado Honey Producers Association we learn that a move is on foot to establish a queen mating station at some point in the Rocky Mountains where there are now no bees. Such a station, under direction of the State College of Agriculture, will make possible the development of a pure strain of bees suited to Colorado conditions. We hope that the project is successful.

Short Course for Iowa

F. B. Paddock announces a short course in beekeeping at the Iowa College of Agriculture from January 29 to February 3. This should not be confused with the longer winter course, but is just the thing for the man or woman who can spare only a week. Full information concerning either course can be secured from F. B. Paddock at Ames, Iowa.

Woodman Judges the Mid-West Show

A. G. Woodman was selected to act as judge of the beekeeping department of the Mid-West Horticultural Exposition at Council Bluffs, Iowa, November 13 to 18.

A New Hive Tool Patented

Oron Waggoner, of Alton, Ill., has secured a patent on a hive tool for prying apart supers of honey without damaging the corners of such supers or greatly disturbing the bees. In order to make use of the tool it would be necessary to fit all supers with small metal plates in which the tool would fit when prying the boxes apart.

The patent is very ingenious. The only objection to it would be the extra cost entailed by equipping all supers with the invention.

Florida Growers Pay Dividends

The average dividend paid on capital invested in the citrus farms of Florida has been 12 per cent for the past five years, according to the "Packer."

Car Shortage

At a time when beekeepers are bemoaning the fact that honey prices have been cut by many producers anxious to dispose of their crops immediately, it may not be amiss to see the losses sustained in other lines, not by the inadvertent selling of producers, but by the inability to get transportation for their product.

Reports from the grape growers in California are to the effect that numbers of carloads of grapes have been spoiled and wasted from lack of storage room, and lack of cars in which to ship at the time when the crop was ready to move.

Michigan potato growers have curtailed digging of potatoes to what they can harvest themselves, since the potato prices have dropped to a point where it would entail a loss to hire labor to handle the crop.

The Wenatchee (Washington) Valley fruit growers estimate a total of 4,000 cars of apples exposed to the weather, owing to lack of storage space and inability to secure cars. Inclement weather now would mean a complete loss of a large portion of such fruit exposed. Cellars, tents, churches and schoolhouse basements

are being rented in an effort to save as much of the crop as possible.

What is a "Scab"?

I agree with Mr. Skovbo, September number, page 422, that it is unfair for one person to undersell another, but I do not agree as to the words he used in regard to what organized labor calls men who take the place of men on strike. The Federal Labor Board says they are not "scabs," but have the same right to work as the others have to strike.

Frank E. Dennis.

Indiana.

The Sugar Industry

Commerce reports indicate that there is considerable activity in sugar. The European countries which sold out closely are now needing more to supply their demand and are seeking it in the West Indian Islands and from the United States. This probably has had much to do with the advance in the price.

The reader must not forget that Europeans are apt to use honey where they use sugar so that an increased demand for sugar on their part will also mean an increased demand for honey. This being the case the Cuban and West Indian honeys which formerly went there should again seek those markets to a larger extent.

New Use for Blow Torch

Clyde Williamson, of Michigan, finding that his means of heating his steam knife were inadequate to keep the knife hot and still keep up with an eight-frame Lewis-Markle extractor which he had installed, hit on the scheme of using a blow torch as a stove for this purpose. He found that it filled the bill exactly. The blow torch fills the dual purpose of a heater and a torch to be used in scorching foulbrood equipment.

Death of Mary E. Wilson

We have just learned through Mrs. C. C. Miller of the death of Mary E. Wilson, who is a sister of Miss Emma Wilson and Mrs. Dr. C. C. Miller, both of Marengo, Ill.

The sympathy of the American Bee Journal force, as well as of a great number of readers who were acquainted either personally or through the American Bee Journal, with Miss

Wilson and Mrs. Miller, goes to these ladies in their bereavement.

The League Bulletin Out

We have just received the 4-page League Bulletin which has been issued by the new secretary of the American Honey Producers' League, Mr. S. B. Fracker, of Madison, Wis. The bulletin gives notice of the St. Louis meeting to be held February 6, 7 and 8 and also advertises honey recipe booklets, which are for sale at cost.

The booklet, furthermore, goes into detail respecting the advertising campaign put on last year and gives the many advantages of the League.

Death of Christian Falbe

We have just learned of the death of Christian Falbe, of Bartleso, Ill., who was one of Illinois' oldest beekeepers. Mrs. Falbe, we understand, is to dispose of her entire holdings of bees and supplies and go out of the business.

Western New York Meeting

The Western New York Honey Producers' Association will hold its annual convention at the Hotel Statler, Buffalo, N. Y., on Monday and Tuesday, December 4 and 5. A good program is assured. Program on application to Secretary H. M. Myers, Ransomville, N. Y.

Iowa Secures Another Man

Mr. Stewart M. Farr, a graduate of the Michigan Agricultural College, has been taken on the staff of the Iowa State Agricultural College at Ames to fill the position of Graduate Assistant in Apiculture. Mr. Farr will devote half of his time to instruction work and the remainder to research.

The Iowa Department shows what can be done by systematic and untiring energy such as Mr. Paddock, the head of the department of beekeeping there, has displayed, with the aid of a strong demand on the part of Iowa beekeepers.

La Fayette County Meet

The first meeting of the newly-organized La Fayette Beekeepers' Association was held at the Court House in Darlington, Wis., October 19, assisted by L. P. Whitehead, Extension Apiculturist of the State University. The following officers were elected: Joseph Kurth, of Mineral Point, Wis., president; Henry Arnsmeier, Darlington, Wis., vice president; John G. Franz, Darlington, secretary-treasurer.

The Miller Memorial Fund

An additional fund, received from subscriptions, has been sent to the Memorial Library, by Gleanings. The amount is \$433.88, with accrued interest added. This includes the amount of \$282.93 formerly mentioned. If we are not mistaken, with the additional sums received by Prof. Wilson, the entire total is upward of \$1,600.

BEES TO CANADA

Package bees at reduced prices; highly bred Italian queens, leather-colored, three-banded stock; thoroughbred quality, prolificness guaranteed. I ship to various parts of the United States and Canada every spring; unsolicited testimonials and repeat orders prove satisfaction. My bees are healthy. Safe arrival or replacement or money refunded, guaranteed. Shipments begin about April 15. Order early and be in time. Three-frame nuclei a specialty, and have shipped them safely for years, not only to northern, eastern and western parts of the United States, but also to Canada. Also shipped successfully to the Virgin Islands. Write for my circular of special offer on three-frame nuclei and combless packages.

C. M. ELFER, ST. ROSE, LA.

A SUPERIOR QUALITY
AT LESS COST

SUPPLIES

A SUPERIOR QUALITY
AT LESS COST

(MADE BY THE DIAMOND MATCH CO.)

WE ARE MAKING SPECIAL REDUCTIONS IN PRICES WHICH ARE GOOD FOR NOVEMBER AND DECEMBER SHIPMENT ONLY. WE ARE SURE BEEKEEPERS WILL PROFIT BY TAKING ADVANTAGE OF THIS REDUCTION.

One Story Complete Dovetailed Hives

With metal telescope cover, inner cover, reversible bottom Hoffman frames, nails, rabbets.

STANDARD SIZE

Crate of five, K. D. 8-frame \$11.40
Crate of five, K. D. 10-frame 11.95

JUMBO SIZE

Crate of five, K. D. 10-frame \$12.85

FULL DEPTH HIVE BODIES

frames, nails, rabbets.

Standard size, crate of five, K. D. 8-frame \$4.70
Standard size, crate of five, K. D. 10-frame 5.30
Jumbo size, crate of five, K. D. 10-frame 6.20

COMB HONEY SUPERS

For 4x5x1 3/8 plain sections, including section holders, fence separators, springs, tins and nails.

Crate of five, K. D. 8-frame \$5.00
Crate of five, K. D. 10-frame 5.40

HOFFMAN FRAMES

Standard size 100, \$4.70; 500, \$22.00
Shallow 100, \$3.90; 500, \$19.00
Jumbo 100, \$5.20; 500, \$25.00

DIAMOND BRAND FOUNDATION

 SPECIAL
PRICES

Medium, 5 lbs., 65c lb.; 50 lbs., 60c lb. Thin super, 5 lbs, 70c lb.; 50 lbs, 65c lb.

SPECIAL
PRICES 

ALUMINUM HONEY COMBS

Standard Langstroth \$4.00 box of 10 only
Shallow Extracting \$3.00 box of 10 only
Jumbo \$5.00 box of 10 only

HOFFMAN & HAUCK, Inc., Woodhaven, N. Y.

Crop and Market Report

Compiled by M. G. Dadant.

For our December issue we asked the following questions of our reporters: 1. Are bees going into winter well stocked as to food and strength? 2. The honey plants in a condition favorable for next season? 3. Is honey moving more rapidly than in past few weeks? 4. Are prices becoming stabilized? 5. Are beekeepers generally optimistic? 6. Is local selling relatively greater or less than formerly? 7. Is there a large wholesale demand in quantities? Local or not?

WINTER CONDITION

Practically all over the country bees are going into winter quarters in the very best shape, if reference is made only to the bees of the progressive beekeepers who take pains to feed where the stores are a little short. In some sections the smaller beekeepers will suffer for not having fed sufficiently to keep the bees over winter. In most sections, however, the fall flow has been very good and the bees have bred up to a good strength and have also stored enough honey to put them in the very best shape.

HONEY PLANT CONDITIONS

Generally speaking, honey plants are going into winter in very good shape, especially in the white clover regions. Some sections, such as southern Wisconsin, and southern Illinois, have suffered from too much drought, but this has been partly alleviated by rains during November, so that beekeepers are hoping for a good stand of clover in the spring. In most other localities clover is even in better shape than a year ago and prospects for 1923 seem very good.

The South seems to have had rather too little rain than too much, and conditions are not extremely flattering, especially in some few sections. However, the November rains have helped, and the indications are that normal conditions will prevail.

HONEY MOVEMENT

Up until the last two or three weeks honey has been pretty much of a drag on the market in a retail as well as wholesale way, with the exception of comb honey, which has been selling very readily.

Fruit is now pretty well out of the way, however, and the demand for honey is strengthening. We find reports of very much better demand during the last two weeks of November and undoubtedly the trade will pick up from now on, owing to the fact that the fruit is pretty well disposed of. Moreover, in the Central West fruit is not keeping nearly as well as had been hoped and the shrinkage will be very great. In our own locality Jonathan and Grimes Golden apples, which usually carry over until the new year, are being disposed of quickly from the fact that they are not keeping.

STABILIZATION OF PRICES

Prices are not yet stabilized. There are still too many beekeepers who think they must sell quickly and that the price is going to slump beyond all reason. These beekeepers are offering their honey at a very much reduced price, with the result that other beekeepers more progressive are having to hold their honey until this job lot of stuff is disposed of. So far the demand has not been strong and there is still some of this low-priced honey on hand. The small beekeeper of the Central West is not the only violator. There have been several large producers in the Inter-Mountain and California territory who have offered carloads of honey at extremely low prices, which were not necessary in view of the state of the market.

For instance, we learn of one or two cars of Nevada and Utah honey being sold at 63½¢ f. o. b. shipping station, which would amount to about 8¼¢ cents f. o. b. Chicago, for good white alfalfa honey. We also heard

of a near car of Wisconsin honey selling at a price of 8¼¢ delivered. These prices are entirely out of line and are certainly due to the fact that the beekeepers are not informed on market conditions or have become scared and are selling to get rid of their crop before an anticipated drop.

OPTIMISM AMONG BEEKEEPERS

Generally, beekeepers are optimistic, except on prices of honey. There is not doubt sufficient foundation for this. There should be reason for much discouragement on honey prices. Even though the demand has remained strong in the large markets for honey and though the duty has recently been imposed upon imported honey and sugar has risen in price and is still rising, beekeepers, or at least some of them, do not realize that this should be reflected in the price of honey and are offering good white honey at an unreasonably low price. Most certainly the beekeeping industry lacks not only from proper distribution of the honey, but also is hurt by the unwise producer who does not know how to dispose of his crop.

LOCAL HONEY SELLING

Undoubtedly there is very much more local selling than in past times. We have been urging the selling of honey locally for several years. This does not mean that every beekeeper should sell locally, regardless of price, but that he should sell locally if possible to get a good price which will move honey through the usual channels of trade. That is to say, he should not sell his honey for a much lower price than it could be bought for through the regular channels of trade. If he does so he had best sell it in a jobbing way and let the other party hold the price up.

Roadside selling is on the increase and we have learned of one Colorado party who has sold as much as 100,000 pounds in one year in this way.

WHOLESALE DEMAND

The wholesale demand, as well as retail, has increased materially. We understand that one of the largest co-operative associations has disposed of all of their comb honey and that the price is to take a rise in the near future. The demand for extracted honey also is increasing rapidly with the effect that prices in the larger centers are stiffening.

It is my opinion that some of the low prices offered on honey during the last month or two which had a tendency to lower prices everywhere, were not warranted, and it would not be surprising if within the next two months the prices on good white honey should rise. There is no reason why white alfalfa should sell at a price of 6 to 7¢ f. o. b. shipping point nor should good white clover honey be offered as low as 8¢ f. o. b. central western shipping points.

In conversation with a progressive beekeeper recently he stated that he could not produce good white clover honey and afford to stay in the beekeeping game if he got less than 11¢ jobbing f. o. b. his shipping point. Good clover honey should be worth this and will be worth it whenever all beekeepers apprise themselves of true market conditions and also make some co-operative efforts to get proper distribution.

There has been an advance of from 10 to 50 per cent in prices of practically all farm products during the last 12 months and there is no reason why this advance should not be reflected in the honey market, inasmuch as allied conditions, which reflect on the honey trade, have shown such a rise, also.

We can see no reason for pessimism with reference to the sale of honey, although we are still very pessimistic over the failure of such a large number of beekeepers to realize just what their honey is worth and why it needs better distribution.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue: If intended for classified department it should be so stated when advertisement is sent.

BEES AND QUEENS

ATWATER offers carload best table honey, 8c.

PACKAGE BEES—2000 big, strong, healthy colonies; will be ready to supply package bees in the spring. Italian or Carniolan queens. Let me quote prices and book your order early. A small deposit reserves shipping date. Circular free.

J. E. Wing, 155 Schiele, Ave.,
San Jose, Calif.

PACKAGES AND NUCLEI for 1923. Get my prices. J. J. Scott, Crowville, La.

I AM BOOKING ORDERS now for next spring delivery, 3-frame nuclei and queens at the same price as this year. Caucasian or Italian race.

Peter Schaffhauser, Havelock, N. C.

PACKAGE BEES and nuclei. See ad on page 570. Lovett Honey Co.,

602 N. 9th Ave., Phoenix, Ariz.

SEE my display ad. in this number. Jes Dalton, Bordelonville, La.

ITALIAN BEES, brood and young queens for delivery April 15 to June 15. One frame emerging brood and bees. One extra pound of bees, one young Italian queen, all for \$5.00; 25 or more, \$4.75; 50 or more, \$4.50. Bright three-banded stock only; no disease; safe arrival and satisfaction guaranteed; 25 per cent deposit to book order.

R. S. Knight, R. F. D. 2, New Orleans, La. SEE MY DISPLAY ADV. for package bees, queens and nuclei.

W. H. Moses, Lane City, Texas.

HARDY ITALIAN QUEENS, \$1 each. W. G. Lauver, Middletown, Pa.

PACKAGE BEES for 1923—Now booking orders for Yancey Hustlers. See larger ad. for prices. Caney Valley Apiaries, Bay City, Texas.

Yancey Bros., Owners.

LATE QUEENS—For late queens send me the order. Pure three-banded Italians. No disease. Low prices. D. W. Howell, Shellman Ga.

FOR SALE—60 colonies bees, with location or without location.

Carl Sommerdorf, Brownston, Minn.

BRIGHT THREE-BAND ITALIAN QUEENS—85c each, six or more \$8 a dozen. After October 20, \$1.00 straight. I am now booking package bees, queens and nuclei for March, April and May. Get my prices and terms before ordering. J. L. Morgan,

Tupelo Honey Co., Columbia, Ala.

CARNITALIAN—What's a Carnitalian? A blended bee. A combination of the two finest sorts of bees; the Carniolan, from the Julian Alps, the gentlest, hardiest and most prolific bees known; and the American-Italian, product of fifty years of skilled breeding; golden drones of the finest procurable strains have been crossed and re-crossed with pure imported Carniolan stock from the famous breeder, Jan Strgar. These early crosses, though variable in color, are remarkable bees. I shall have Carnitalian queens in quantity next season, 1923. John Protheroe, Rustburg, Virginia.

WE ARE BOOKING ORDERS NOW for queens and package bees for next spring delivery. Graydon Bros.,

Rt. 4, Greenville, Ala.

NOW BOOKING PACKAGE BEES—Write for circular of bees and prices. See other advertisements elsewhere, this issue.

C. M. Elfer, St. Rose, Louisiana.

NUCLEI—Read our announcement, page 541. We are prepared to supply a limited number of nuclei with queens of the blood of Achievement Girl C5 and Chaffee's Honey Girl No. CCB61, for early spring delivery from our southern breeding yards. Orders will be filled in rotation as initial payments are received. One dollar with each nuclei needed, enclosed with your letter of inquiry, books your order. Money promptly refunded if our offerings are not entirely satisfactory. Chaffee Crites Bee Farms, Amenia, N. Dak.

FOR SALE—400 colonies bees, \$6 and \$8 per colony; 3 locations, equipments. Chas. Heim & Sons, Three Rivers, Texas.

ITALIAN BEES AND QUEENS—1 to 5-lb. packages, 1-frame nuclei to full colonies, shipped when you want them. Certificate of inspection certifying freedom from disease with each shipment. You will be pleased with our stock, our service and our prices. Write for our prices before you order your needs.

White Clover Farm and Apiary,
Hamburg, La.

PACKAGE BEES—If queens of superior merit are wanted with shipments of package bees, read announcement page 541. Then write without delay to Chaffee Crites Bee Farms, Amenia, N. Dakota.

PACKAGE BEES AND QUEENS—Three-band or golden; best strains of either; hardy, no disease. Booking orders for 1923. Circular free. Prices reasonable. Dr. White Bee Company, Sandia, Texas.

PINARD'S quality of Root's and Prof. Coleman's strain of bees and queens. Booking orders for spring delivery. Promptness and satisfaction my motto. Prices right; circular free.

A. J. Pinard, Morgan Hill, Calif.

ANNOUNCEMENT—Mr. W. J. Redfearn has entered the business of Indianola Apiary. Mr. Redfearn has had several years experience with Mr. J. J. Wilder, Waycross, Ga., and comes well recommended by him. My old and new customers may expect the same business methods in promptness and square dealing. J. W. Sherman, Valdosta, Ga.

BOOK YOUR ORDERS for QUEENS now—Goldens, \$2; tested, \$3; banded, \$1.50; tested \$2.50; six or more, 10 per cent less. Clover Leaf Apiaries, Wahoo, Neb.

GOOD QUEENS at a low price. I have only two grades of queens, that is, tested and untested. I send out good looking and good laying queens of the 3-band strain. If you are not pleased with them, send them back and get your money. One queen, \$1.00; 25 or more, 90c each; one tested queen, \$1.25; 25 or more \$1.15 each.

W. H. Moses, Lane City, Texas.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
86 Dey St., New York City.

"SHE-SUITS-ME" Queens, line-bred Italians. \$1.50 each; 10 to 24, \$1.30 each; 25 to 49, \$1.25 each; 50 to 99, \$1.20 each; 100 queens, \$1.15. See page 38 of January number. Allen Latham, Norwichtown, Conn.

IF you want bright goldens that are bred for beauty and also honey-gathering qualities, write Honoraville Bee Co., Honoraville, Ala.

FOR SALE—Three-band Italian queens and bees by the pound. Book your orders now for early spring delivery. Write for prices. W. T. Perdue & Sons, Rt. 1, Fort Deposit, Ala.

QUEENS—The best, at prices no higher than the best of the rest. See our announcement, page.

Chaffee Crites Bee Farms, Amenia, N. Dak.

PACKAGE BEES AND QUEENS for 1923—Am now booking orders for next spring shipment. Write me for prices. Nothing but pure Italians. No disease.

Jasper Knight, Hayneville, Ala.

BEES AND QUEENS—I have a limited amount of hybrid bees, not fully Italianized, I am going to offer for early spring delivery at the following bargain prices: 1-lb. package, \$2.75; 10 or more, \$2.50 each; 2-lb. package, \$3.75; 10 or more, \$3.50 each; 3-lb. package, \$4.25; 10 or more, \$4.00 each. Young untested Italian queen included with each package at the above named prices. This is a real saving to the purchaser, for in a few weeks the colony will Italianize. Ten per cent books your order. Prompt and safe delivery guaranteed. Never had a case of foulbrood in my apiaries. Would urge my old customers to place orders early.

H. E. Graham, Gause, Texas.

BEES BY THE POUND, ALSO QUEENS—Booking orders now. Free circular gives prices, etc. See larger ad elsewhere.

Nueces County Apiaries, Calallen, Texas.
E. B. Ault, Prop.

GOLDEN QUEENS. GOLDEN—1922 price: untested, one, \$1.25; doz., \$12. Select untested, one, \$1.50; doz., \$15; tested, one, \$2.50, doz., \$27.50. Pure mating and safe arrival guaranteed in United States and Canada. Booking orders now.

Tillery Bros., Georgiana, Ala.

BEES AND QUEENS at reduced prices. Cypress hives for sale. Write for terms. Otto Diestel, Eliza, Ga.

FOR SALE—Leather colored Italian queens, tested, until June 1, \$2.50; after, \$3. Untested, \$1.25; 12, \$13. Root's goods at Root's prices. A. W. Yates,
15 Chapman St., Hartford, Conn.

CARNIOLAN QUEENS—None better. Select tested, \$2.50 each; select untested, \$1.25 each. Also choice Italians, same prices. Send for circulars.

Geo. W. Coltrin & Son, Mathis, Texas.

HONEY AND BEESWAX

ATWATER offers carload best table honey, 8c.

LIGHT AMBER HONEY in 60-lb. cans. Van Wyngarden Bros., Hebron, Ind.

CARLOAD BUYERS WRITE—Fine alfalfa clover honey, carlot, 8c pound.

E. F. Atwater, Meridian, Idaho.

FOR SALE—Spanish needle-heartsease honey. Fine body and flavor. In 5-lb pails and 60-lb. cans. Write for price. State quantity wanted.

F. W. Luebeck, R. 2, Knox, Ind.

FOR SALE—White clove honey, case of 120 lbs. \$13.80. Sample 20c to apply on first order.

Martin Carsmoe, Ruthven, Iowa.

FOR SALE—9 barrels extra fine extracted white clover honey, 7 barrels fine light amber fall honey. Can put 1¹/₂ honey up in 60-lb. tin cans and 5 and 10-lb. tin pails. Purity and quality guaranteed. Prices on application if you state quantity wanted. Sample 10c. Emil J. Baxter, Nauvoo, Ill.

FOR SALE—White strained clover honey, clean and clear for table use, 5-lb. pails, \$90 a hundred. Less than 100, \$1 each. We try to please. Try us Ernest W. Peterson,
Sandwich, Ill.

FOR SALE—Clover-basswood extracted honey in 60-lb. cans, single can, 15c lb., large lots 12c. John Olson, Davis, Ill.

EXTRA FINE WHITE CLOVER HONEY—in 5-lb. pails. Write for prices, stating quantity wanted.

A. P. Roth, Beach City, Ohio.

FOR SALE—Clover honey; 2 60-lb. cans of case, 12c per pound.

Lewis Klaty, Carsonville, Mich.

EXTRA FINE light amber honey in cases of twelve 5-lb. pails, \$9.60; twelve 10-lb., \$18; F. O. B. Lansing. This honey is liquefied and filtered, making it a very fine product.

W. A. Lexen, East Lansing, Mich.

FOR SALE—1,000 5-lb. pails nice clover basswood honey; 10 to 50 pails, 75c each; over 50, 70c.

E. H. Pratt, Whitney Point, N. Y.

FOR SALE—Clover extracted honey in new 60-lb. cans, 120 lbs. net, \$15.

A. J. Norberg, Spring Valley, Ill.

NEW white clover and fall extracted honey. Write for prices. State quantity wanted. Faulconer Bros., Lewistown, Mo.

FOR SALE—No. 1 white comb, \$6 per case; No. 2 white, \$5 per case of 24 sections; dark comb \$1 per case less; in 24 case lots 50c per case less; dark and amber extracted 10c per pound, two 60-lb. cans to case; amber baking honey in barrels, 8c per pound. Discount on extracted in quantities.

H. G. Quirin, Bellevue, Ohio.

FOR SALE—Bees, comb and extracted honey. A. L. Kildow, Putnam, Ill.

FOR SALE—Choice clover extracted honey in case or carload lots. Comb honey in Danz and Beewax sections, packed in 6 or 8-case carriers. Quality unexcelled.

J. D. Beals, Oto, Iowa.

HONEY FOR SALE—In 60-lb. tins; water white orange, 13c; white sage, 12c; extra light amber sage, 10¹/₂c; New York State buckwheat, 10c, for immediate shipment from New York.

Hoffman & Hauck, Inc.,

Woodhaven, N. Y.

BEESWAX WANTED—We need large quantities of beeswax and are paying good prices now. Ship to us at Hamilton, Ill., or Keokuk, Iowa, or drop us a card and we will quote f. o. b. here or your own station, as you may desire.

Dadant & Sons, Hamilton, Ill.

FOR SALE—Fine quality raspberry-milkweed honey in new 60-lb. cans.

P. W. Sowinski, Bellaire, Mich.

FOR SALE—Choice white clover and basswood honey, mostly basswood. State quantity desired.

Jos. Hesselberg, Potosi, Wis.

FOR SALE—Choice new clover extracted honey; put up in new 60-lb. cans. Write for prices, stating quantity desired.

W. M. Peacock, Mapleton, Iowa.

HONEY—Atwater sells fine alfalfa-clover honey, extra strong cases, case of two 60-lb. cans, \$12; case of twelve 5-lb. pails, \$7.30, all f. o. b. here. Ten-lb. pails all sold out; plenty of the others on hand.

E. F. Atwater, Meridian, Idaho.

SUPPLIES

ATWATER offers carload best table honey, 8c.

FOR SALE—Five thousand No. 1 comb-honey supers, used, but some only one season; four frame extractor, capping melter, Herscher press, 200 pounds thin surplus, 500 pounds medium brood, 50 queen excluders, new; 10,000 No. 1 sections, 8-frame excelsior covers. Some new 10-frame hive bodies, empty; Rauchfuss press and cutting box; also complete outfit for 25 colonies not included in above list. Write for prices. B. F. Smith, Jr., Fromberg, Mont.

WESTERN BEEKEEPERS—We can demonstrate that you can save money on buying bee supplies of best quality. Write for our latest price list.

The Colorado Honey Producers' Association, Denver, Colo.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.

American Bee Journal, Hamilton, Ill.

FOR SALE

ATWATER offers carload best table honey, 8c. **FLORIDA** modern bees business for sale—250 colonies Italians, with location and complete equipment.

J. T. DeLacy, Havana, Fla.

FOR SALE—1923 Golden Italian queens. Satisfaction guaranteed. Price, unt., \$1 each or \$10 per doz.

E. F. Day, Honoraville, Ala.

FORCED TO SELL—Conflicting claims on my time have forced me to sacrifice my package business and apiaries for \$1,750. This is a snap for the apiarist wishing to live in the fairest part of California and engage in the best paying end of the bee business; was unable to supply the demand this year and have orders already for 1923. Inquiries and inspections welcomed. Write for details regarding this opportunity. References on request.

G. T. Johnson,
165 Raymond Ave., San Jose, Calif.

FOR SALE—My entire bee business, consisting of 325 colonies of bees in 2-story hives, with lots of honey; complete extracting equipment; a \$4,000 deal; \$2,500 cash necessary; time on balance. For full details address

H. R. Fisher, Montrose, Colo.

FOR SALE—White and amber extracted honey; also comb honey. Write for prices. State quantity wanted.

Dadant & Sons, Hamilton, Illinois.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled. Superior Honey Co., Ogden, Utah.

FOR SALE—Modern standard make typewriter, \$50; or will trade for bees, queens, honey, or offer. Mrs. Ida Harris,
Box 707, Tuscaloosa, Ala.

FOR SALE—Good second-hand 60-lb. cans, two cans to a case, boxed, at 60c per case f. o. b. Cincinnati. Terms cash.

C. H. W. Weber & Co., 2163 Central Ave., Cincinnati, Ohio.

MISCELLANEOUS

ATWATER offers carload best table honey, 8c.

HON-E-NUT CANDIES—Made from pure honey, nuts and chocolate. The most wholesome candy made. Try it and be convinced; \$1 per pound, postpaid.

Fairmount Apiaries, Schuylkill Haven, Pa.

FOR SALE—58 acres, 8 acres bench land under main canal, highly improved; balance bottom land; one-half mile town, railroad. Good house, partly furnished; 30 working colonies bees; material for 400 more on hand. Ideal home for beekeeper; cheap for cash. Recently widowed, can not handle, must sell. Address box 511, Duncan, Ariz.

PLANS FOR POULTRY HOUSES—All styles, 150 illustrations; secret of getting winter eggs, and copy of "The Full Egg Basket." Send 25 cents.

Inland Poultry Journal, Dept. 56,
Indianapolis, Ind.

SITUATIONS

ATWATER offers carload best table honey, 8c.

WANTED—For California extracted honey producer, permanent job; no objection to lady beekeeper. Address "California," American Bee Journal, Hamilton, Ill.

WANTED

ATWATER offers carload best table honey, 8c.

WANTED—Buckwheat extracted honey in 60-lb. tins and 160-lb. kegs. Advise quantity and the price.

Hoffman & Hauck, Inc., Woodhaven, N. Y.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices. Superior Honey Co., Ogden, Utah.

WOULD LIKE TO BUY some more good honey, some beeswax and also maple syrup. Paul Thomae, 1156 Third St., Milwaukee, Wis.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—Comb honey. Large quantities. Quote lowest price to wholesale dealers. Howe Food Products Co., Superior, Wis.

WANTED—400 colonies bees with locations and full equipment on share basis, for season of 1923, or longer if pleased, for extracted honey. Bees to be in modern hives and free from disease.

Geo. P. Mathis,
Reynoldsville, Ill.

BEESWAX WANTED—We need large quantities of beeswax and are paying good prices now. Ship to us at Hamilton, Ill., or Keokuk, Iowa, or drop us a card and we will quote f. o. b. here or your own station, as you may desire. Dadant & Sons, Hamilton, Ill.

Lewis 4-Way Bee Escapes



Four exits from supers. Fits all standard boards. Springs of coppered steel. Made of substantial material. Price each 18c, postpaid.

Made by

G. B. LEWIS COMPANY

Watertown, Wis., U. S. A.

For Sale by All Dealers.

WE WANT MEN

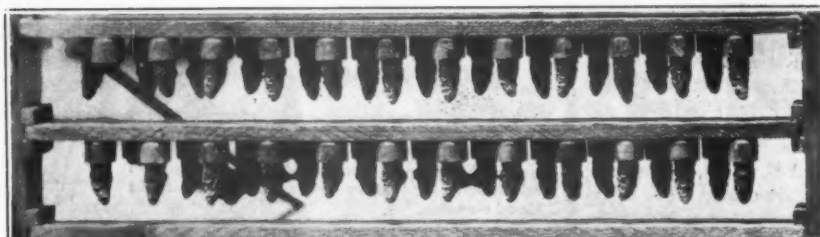
to buy our Guaranteed Nursery Stock. To the Gardener: Write us your needs on Landscape Work. Write for plants. To the Buyers: Send for free colored circular. **The Coe, Converse & Edwards Co.,** Wisconsin's Largest Nursery, Fort Atkinson Wis.

Booking Orders for May Delivery 1923

My introduced-laying-enroute queens and packages. One good, vigorous, young queen, one standard Hoffman frame of emerging brood and adhering bees, and one additional pound of bees. Price complete f. o. b. Bordelonville, \$5.00.

Additional frames of brood, or additional pounds of field bees to make larger package, \$1 each, respectively in above packages. Bees and queen Italians. Queen introduced and laying enroute to you. Health certificate attached. Safe arrival and satisfaction guaranteed. One-fifth cash books order. Send for circular and names of satisfied customers in your state. Complete references given.

Jes Dalton, Bordelonville, La.



Our Queens are Started Right by Well Fed Cells

BOOKING ORDERS NOW FOR 1923. QUEENS READY APRIL 1.

We ship thousands of our old reliable three-banded Italian queens all over the United States and Canada every year. Safe arrival guaranteed. Orders booked for one-fourth cash. No disease. Circular free. Nearly every beekeeper who has visited our apiaries has become a customer. There must be a reason.

Prices for April, May and June:

Untested \$1.25; 6, \$6.50; 12, \$12 Tested \$2.50; 6, \$14; 12, \$27
Select untested \$1.50; 6, \$ 8.00; 12, \$15 Select tested \$3 each

JOHN G. MILLER, 723 C. Street, Corpus Christi, Texas

THE BEST BEE BOOKS

THE HIVE AND HONEYBEE, by Langstroth and Dadant.

The latest edition of the book which has received world-wide commendation. 448 large pages, durable cloth binding, \$2.50.

THE DADANT SYSTEM OF BEEKEEPING, by C. P. Dadant.

This little book of 118 pages gives an account of the author's system of honey production with the large hives. Much fundamental information is included in the discussion of the reason for the use of this particular equipment. Cloth, postpaid, \$1.

OUTAPIARIES, by M. G. Dadant.

A book of 125 pages and 50 illustrations dealing with honey production on an extensive scale. Cloth, \$1.

1,000 ANSWERS TO BEEKEEPING QUESTIONS, by C. C. Miller.

Answers the beginner's puzzling questions, gleaned from replies to questions received over a period of 20 years. Cloth, \$1.25.

AMERICAN HONEY PLANTS, by Frank C. Pellett.

300 large pages, with 155 illustrations, mostly from photographs, give just the information which the beekeeper needs to enable him to make the most of his locality. Cloth, \$2.50.

PRACTICAL QUEEN-REARING, by Frank C. Pellett.

All the best methods of queen rearing as practiced by leading beekeepers and commercial queen breeders. 105 pages, 40 illustrations, \$1.

BEEKEEPING IN THE SOUTH, by Kenneth Hawkins.

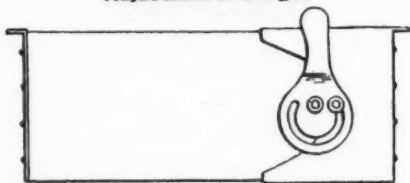
Detailed information regarding the resources and methods of honey production in various sections of the South. Cloth, \$1.25.

FIRST LESSONS IN BEEKEEPING, by C. P. Dadant.

167 pages of information for the beginner with bees, illustrated with 178 pictures. Cloth, \$1.

AMERICAN BEE JOURNAL, HAMILTON, ILLINOIS

The Bowers Adjustable Division Board Adjustable to Length



Patented June 27, 1922.

It's different, never too short, never too long, always just right, regardless of burr combs, bee glue or old warped hives. Time saver, money maker. Money back guarantee. 75c each. Circulars, quantity prices.

F. D. BOWERS, Sugar Grove, Pa.

INDIANOLA APIARY COMPANY

Italian Bees and Queens, bright golden and 3-banded. Orders booked for season of 1923 as follows:

- 1-lb. pkg. bees with unt. queens---\$3
- 2-lb. pkg. bees with unt. queens---\$5
- 3-lb. pkg. bees with unt. queens---\$6

Ten per cent discount on orders of \$25 or more.

Thirty years' experience, hundreds of satisfied customers. Your orders solicited. Satisfaction guaranteed.

J. W. SHERMAN, Valdosta, Ga.

BERRY'S QUEENS

bring repeat orders, because they insure honey crops and satisfaction to the buyer.

Booking Orders Now for Next Year.

M. C. BERRY CO., Hayneville, Alabama

Every Thursday
52 Times a Year

THE YOUTH'S COMPANION

For Boys, for Girls, for
Parents, for the Young
in Heart of all Ages.

Packed full of entertaining and informing reading. Hundreds of Short Stories; Serial Stories. Then the Boys' Pages, the Girls' Pages, the Family Pages. The Current Events, Editorials, Humorous Miscellany. Altogether the best investment in "Good Reading."

Costs LESS THAN Five Cents a Week

Check your choice and send this coupon with your remittance to the PUBLISHERS OF THIS PAPER, or to THE YOUTH'S COMPANION, BOSTON, MASSACHUSETTS

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| 1. The Youth's Companion—52 Issues for 1923 | } ALL FOR |
| 2. All the Remaining Weekly Issues of 1922 | |
| 3. The Companion Home Calendar for 1923 | |
| \$2.50 | |

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| 2. McCall's Magazine, 12 Fashion Numbers | 1.00 | |
| \$3.00 | | |
- AMERICAN BEE JOURNAL, Hamilton, Ill.



1923—Prices on Nuclei—1923

ONE EXTRA POUND OF BEES WITH EACH NUCLEI. ALL BEES SHIPPED ON CAPPED BROOD.

We do not sell bees without combs. Seventeen years of experience has taught us that a three-comb nucleus, if received before May 15th, will gather a surplus crop of honey. With the extra pound of bees you are doubly assured of that fact. Our stock is the famous Root Quality. We guarantee safe arrival and satisfaction, and free from disease.

3-frame nuclei, Italian bees, with queen, \$5.00 each.

3-frame nuclei, black bees, with Italian queen, \$4.50 each.

3-frame nuclei, black bees, without queen, \$3.50 each.

One-third down to guarantee acceptance.

To whom it may concern: I have this day (Sept. 22, 1922) completed the inspection of the yards of
A. R. Irish and found them free from foulbrood. S. V. Brown, State Inspector of Apiaries.

A. R. IRISH, Nuclei Specialist, Savannah Ga.

Box 184.

HONEY We just received several carloads of beautiful honey. Roadside beekeepers and those supplying a family trade will do well to take advantage of these bargain prices:

White orange	In 60-lb. Tins, 13c lb.	White sage	12c lb.
	Extra L. A. sage		10 1/2 c lb.

GLASS AND TIN HONEY CONTAINERS

2 1/2-lb. cans	crates of 100, \$4.50
5-lb. pails (with handles),	crates of 100, \$7.00
10-lb. pails (with handles)	crates of 50, \$5.25
60-lb. tins, 2 per case, new, \$1.20 case; used, 25c.	

White Flint Glass, with Gold Lacquered Wax Lined Caps

8-oz. honey capacity	\$1.50 per carton of 3 doz.
16-oz. honey capacity	\$1.20 per carton of 2 doz.
Quart, 3-lb., honey capacity	.90 per carton of 1 doz.

HOFFMAN & HAUCK, Inc., Woodhaven, New York

SUPERIOR ITALIAN BEES AND QUEENS

4,000 NUCLEI OR PACKAGES FOR 1923.

Inquiries and orders are coming now from old, satisfied customers. We guarantee everything we sell

Special prices in large lots of Cypress Bee Supplies

THE STOVER APIARIES, MAYHEW, MISSISSIPPI

NOTICE TO BEEKEEPERS

I am offering to the trade of 1923 a pure strain of Italian bees, in three-frame nuclei; also two and three-pound packages. It will pay you to get my prices before placing your orders elsewhere, which will be sent on application. Weather permitting, shipping starts April 1. Health certificate with each shipment. I guarantee every queen purely mated, safe arrival and, pay all honest claims, and save you the trouble of trying to collect from the carrier. My aim is **Quality, Quantity and Quick Service.** I can furnish testimonials from all over the United States and Canada.

Prices, three-frame nuclei \$5.00 each; two pound package, \$4.50

Above includes a select untested queen.

Reference: Brunswick Bank and Trust Co., of this place.

A. B. MARCHANT, Jesup, Georgia

You can have cash for your wax and old combs or cappings at the market price, or we allow a little more in exchange for supplies

Write for our terms and prices

"falcon" Supplies, Queens, Foundation

Booklet, "Simplified Beekeeping for Beginners" free

Write for catalog

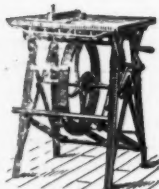
W. T. FALCONER MFG. COMPANY, Falconer, (NEAR JAMESTOWN) N. Y., U. S. A.

"Where the BEST Beehives come from"

BARNES' FOOTPOWER MACHINERY

Read what J. E. Parent of Chariton, N. Y., says:

"We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work."



W. F. & JOHN BARNES CO.,
995 Ruby St., Rockford, Ill.

Our Honey Labels are Good Labels Send for Catalog.
American Bee Journal, Hamilton, Ill.



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QUEENS

PACKAGE BEES NUCLEI

QUEENS



FOR YEARS WE HAVE BEEN SHIPPING THOUSANDS OF
POUNDS OF BEES ALL OVER THE U. S. A. AND CANADA

Now is the time to place your order for spring.

Send for our 1923 Circular, it's free.

We can save you money by ordering early.

The very best of Bees and Queens.

ITALIANS

CARNIOLANS

GOLDENS



NUECES COUNTY APIARIES, CALLEN, TEXAS

HONEY CANS AND CASES

Several carloads, all sizes, just received at our Ogden, Utah and Idaho Falls, Idaho, warehouses. Quick service; lowest prices. Also comb honey cases, all kinds.

SUPERIOR HONEY CO., Ogden, Utah

(Manufacturers Weed Process "SUPERIOR FOUNDATION" and Dovetailed Beehives.)

Statement of the Ownership, Management, Circulation, Etc., required by the act of Congress of August 24, 1912, of **American Bee Journal**, published monthly at Hamilton, Illinois for October, 1922.

STATE OF ILLINOIS, } ss.
COUNTY OF HANCOCK.

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared M. G. Dadant, who having been duly sworn according to law, deposes and says that he is the Business Manager of the **American Bee Journal**, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, rendered by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:

Publishers, **American Bee Journal**, Hamilton, Ill.

Editor, C. P. Dadant, Hamilton, Ill.
Managing Editor, Frank C. Pellett, Hamilton, Ill.

Business Manager, M. G. Dadant, Hamilton, Ill.

2. That the owners are:
C. P. Dadant, Hamilton, Ill.
H. C. Dadant, Hamilton, Ill.
V. M. Dadant, Hamilton, Ill.
L. C. Dadant, Hamilton, Ill.
M. G. Dadant, Hamilton, Ill.
Leon Saugier, Hamilton, Ill.
Jos. Saugier, Hamilton, Ill.

That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages or other securities, are: None.

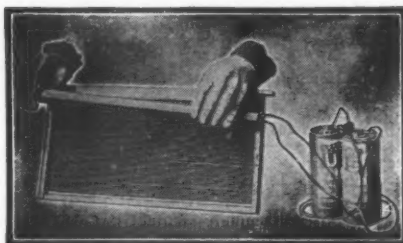
(Signed) M. G. DADANT.
Sworn to and subscribed before me this 1st day of October, 1922.

MARY EARLS (formerly Mary McCoy),
Notary Public.
My commission expires January 17, 1924.

JAY SMITH

HIGH GRADE
ITALIAN QUEENS

Route 3, Vincennes, Indiana.
A card will bring our catalog.



ELECTRIC IMBEDDER

Price without Batteries, \$1.00

Not Postpaid.

Weight 1 lb.

Actually cements wires in the foundation. Will work with dry cells or with city current in connection with transformer. Best device of its kind on the market.

Dadant & Sons, HAMILTON, ILL.

GREAT BOOK
Tells all about
Poultry Feeding
FREE!
GET YOUR COPY TO-DAY

How to Feed From Shell to Show Room
Feeding in confinement; feeding breeding stock; nutritive ration; balancing feeds; preparing pullets for egg production; how to force molt; balance rations for winter eggs; how to produce meat at 4 cents per pound; color feeding; oat sprouting; how to make oat sprouter at home; feeding turkeys; methods and rations used by commercial egg farms.

If you want your flock to PRODUCE you must have this book
Sent absolutely free with 1 or 2 yr. subscription to **POULTRY TRIBUNE**, the big leading Poultry Magazine. Contains complete show reports. Tells everything you want to know about poultry. Monthly, 90 to 120 pages. Profusely illustrated. Send 15c and get 2 big issues; or \$1 for 1 year and book free—\$1.50 for 2 years and book free.

POULTRY TRIBUNE, Dept. 6 Mount Morris, Illinois

American Poultry Journal
Oldest, Largest and Best
4 MONTHS' TRIAL 25 cts.
1 Yr. 75c 2 YEARS \$1 5 Yrs. \$2
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